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(54) Title: OLIGONUCLEOTIDE MEDIATED INHIBITION OF HEPATITIS B VIRUS AND HEPATITIS C VIRUS REPLICATION

(57) Abstract: The present invention relates to nucleic acid molecules, including antisense and enzymatic nucleic acid molecules, such as hammerhead ribozymes, DNAzymes, Inozymes, Zinzymes, Amberzymes, and G-cleaver ribozymes, which modulate the synthesis, expression and/or stability of an HCV or HBV RNA and methods for their use alone or in combination with other therapies. In addition, nucleic acid decoy molecules and aptamers that bind to HBV reverse transcriptase and/or HBV reverse transcriptase primer sequences and methods for their use alone or in combination with other therapies, are disclosed. Oligonucleotides that specifically bind the Enhancer I region of HBV DNA are further disclosed. The present invention further relates to the use of nucleic acids, such as decoy and aptamer molecules of the invention, to modulate the expression of Hepatitis B virus (HBV) genes and HBV viral replication. Furthermore, HBV animal models and methods of use are disclosed, including methods of screening for compounds and/or potential therapies directed against HBV. The present invention also relates to compounds, including enzymatic nucleic acid molecules, ribozymes, DNAzymes, nuclease activating compounds and chimeras such as 2',5'-adenylates, that modulate the expression and/or replication of hepatitis C virus (HCV).



DESCRIPTION

OLIGONUCLEOTIDE MEDIATED INHIBITION OF HEPATITIS B VIRUS AND HEPATITIS C VIRUS REPLICATION

Background Of The Invention

This patent application claims priority from Blatt et al., USSN (09/817,879), filed March 26, 2001, which is a continuation-in-part of Blatt et al., USSN (09/740,332), filed December 18, 2000, which is a continuation-in-part of Blatt et al., USSN (09/611,931), filed July 7, 2000, which is a continuation-in-part of Blatt et al., 09/504,321, filed February 15, 2000, which is a continuation-in-part of Blatt et al., USSN 09/274,553, filed March 23, 1999, which is a continuation-in-part of Blatt et al., USSN 09/257,608, filed February 24, 1999 (abandoned), which claims priority from Blatt et al., USSN 60/100,842, filed September 18, 1998, and McSwiggen et al., USSN 60/083,217 filed April 27, 1998; all of these earlier applications are entitled "ENZYMATIC NUCLEIC ACID TREATMENT OF DISEASES OR CONDITIONS RELATED TO HEPATITIS C VIRUS INFECTION". This patent application also claims priority from Draper et al., USSN 09/877,478 filed June 8, 2001, which is a continuation-in-part of Draper et al., USSN (09/696,347), filed October 24, 2000, which is a continuation-in-part of Draper et al., USSN (09/636,385), filed August 9, 2000, which is a continuation in part of Draper et al., USSN (09/531,025), filed March 20, 2000, which is a continuation in part of Draper, USSN (09/436,430), filed November 8, 1999, which is a continuation of USSN (08/193,627), filed February 7, 1994, now US patent No. 6,017,756, which is a continuation of USSN (07/882,712), filed May 14, 1992, now abandoned; all of these earlier applications are entitled "METHOD AND REAGENT FOR INHIBITING HEPATITIS B VIRUS REPLICATION". This patent application also claims priority from Macejak et al., USSN (60/335,059), filed October 24, 2001, Macejak et al., USSN (60/296,876), filed June 8, 2001, and Morrissey et al., USSN (60/337,055), filed December 5, 2001. These applications are hereby incorporated by reference herein in their entireties, including the drawings.

The present invention concerns compounds, compositions, and methods for the study, diagnosis, and treatment of degenerative and disease states related to hepatitis B virus (HBV) and hepatitis C virus (HCV) infection, replication and gene expression. Specifically, the invention relates to nucleic acid molecules used to modulate expression of HBV and HCV. In

addition, the instant invention relates to methods, models and systems for screening inhibitors of HBV and HCV replication and propagation.

The following is a discussion of relevant art pertaining to hepatitis B virus (HBV) and hepatitis C virus (HCV). The discussion is not meant to be complete and is provided only for understanding of the invention that follows. The summary is not an admission that any of the work described below is prior art to the claimed invention.

In 1989, the Hepatitis C Virus (HCV) was determined to be an RNA virus and was identified as the causative agent of most non-A non-B viral Hepatitis (Choo et al., Science. 1989; 244:359-362). Unlike retroviruses such as HIV, HCV does not go though a DNA replication phase and no integrated forms of the viral genome into the host chromosome have been detected (Houghton et al., Hepatology 1991;14:381-388). Rather, replication of the coding (plus) strand is mediated by the production of a replicative (minus) strand leading to the generation of several copies of plus strand HCV RNA. The genome consists of a single, large, open-reading frame that is translated into a polyprotein (Kato et al., FEBS Letters. 1991; 280: 325-328). This polyprotein subsequently undergoes post-translational cleavage, producing several viral proteins (Leinbach et al., Virology. 1994: 204:163-169).

Examination of the 9.5-kilobase genome of HCV has demonstrated that the viral nucleic acid can mutate at a high rate (Smith et al., Mol. Evol. 1997 45:238-246). This rate of mutation has led to the evolution of several distinct genotypes of HCV that share approximately 70% sequence identity (Simmonds et al., J. Gen. Virol. 1994;75:1053-1061). It is important to note that these sequences are evolutionarily quite distant. For example, the genetic identity between humans and primates such as the chimpanzee is approximately 98%. In addition, it has been demonstrated that an HCV infection in an individual patient is composed of several distinct and evolving quasispecies that have 98% identity at the RNA level. Thus, the HCV genome is hypervariable and continuously changing. Although the HCV genome is hypervariable, there are 3 regions of the genome that are highly conserved. These conserved sequences occur in the 5' and 3' non-coding regions as well as the 5'-end of the core protein coding region and are thought to be vital for HCV RNA replication as well as translation of the HCV polyprotein. Thus, therapeutic agents that target these conserved HCV genomic regions can have a significant impact over a wide range of HCV genotypes. Moreover, it is unlikely that drug resistance will occur with enzymatic nucleic acids specific to conserved regions of the HCV genome. In contrast, therapeutic modalities that target inhibition of enzymes such as the viral proteases or helicase are likely to result in the selection for drug resistant strains since the RNA for these viral encoded enzymes is located in the hypervariable portion of the HCV genome.

After initial exposure to HCV, the patient experiences a transient rise in liver enzymes, which indicates the occurrence of inflammatory processes (Alter et al., IN: Seeff LB, Lewis JH, eds. Current Perspectives in Hepatology. New York: Plenum Medical Book Co; 1989:83-89). This elevation in liver enzymes will occur at least 4 weeks after the initial exposure and can last for up to two months (Farci et al., New England Journal of Medicine. 1991:325:98-104). Prior to the rise in liver enzymes, it is possible to detect HCV RNA in the patient's serum using RT-PCR analysis (Takahashi et al., American Journal of Gastroenterology. 1993:88:2:240-243). This stage of the disease is called the acute stage and usually goes undetected since 75% of patients with acute viral hepatitis from HCV infection are asymptomatic. The remaining 25% of these patients develop jaundice or other symptoms of hepatitis.

Acute HCV infection is a benign disease, however, and as many as 80% of acute HCV patients progress to chronic liver disease as evidenced by persistent elevation of serum alanine aminotransferase (ALT) levels and by continual presence of circulating HCV RNA (Sherlock, Lancet 1992; 339:802). The natural progression of chronic HCV infection over a 10 to 20 year period leads to cirrhosis in 20 to 50% of patients (Davis et al., Infectious Agents and Disease 1993;2:150:154) and progression of HCV infection to hepatocellular carcinoma has been well documented (Liang et al., Hepatology. 1993; 18:1326-1333; Tong et al., Western Journal of Medicine, 1994; Vol. 160, No. 2: 133-138). There have been no studies that have determined sub-populations that are most likely to progress to cirrhosis and/or hepatocellular carcinoma, thus all patients have equal risk of progression.

It is important to note that the survival for patients diagnosed with hepatocellular carcinoma is only 0.9 to 12.8 months from initial diagnosis (Takahashi et al., American Journal of Gastroenterology. 1993:88:2:240-243). Treatment of hepatocellular carcinoma with chemotherapeutic agents has not proven effective and only 10% of patients will benefit from surgery due to extensive tumor invasion of the liver (Trinchet et al., Presse Medicine. 1994:23:831-833). Given the aggressive nature of primary hepatocellular carcinoma, the only viable treatment alternative to surgery is liver transplantation (Pichlmayr et al., Hepatology. 1994:20:338-408).

Upon progression to cirrhosis, patients with chronic HCV infection present with clinical features, which are common to clinical cirrhosis regardless of the initial cause (D'Amico et al., Digestive Diseases and Sciences. 1986;31:5: 468-475). These clinical features can include: bleeding esophageal varices, ascites, jaundice, and encephalopathy (Zakim D, Boyer TD. Hepatology a textbook of liver disease. Second Edition Volume 1. 1990 W.B. Saunders Company. Philadelphia). In the early stages of cirrhosis, patients are classified as compensated, meaning that although liver tissue damage has occurred, the patient's liver is still able to detoxify metabolites in the blood-stream. In addition, most

patients with compensated liver disease are asymptomatic and the minority with symptoms report only minor symptoms such as dyspepsia and weakness. In the later stages of cirrhosis, patients are classified as decompensated meaning that their ability to detoxify metabolites in the bloodstream is diminished and it is at this stage that the clinical features described above will present.

In 1986, D'Amico et al. described the clinical manifestations and survival rates in 1155 patients with both alcoholic and viral associated cirrhosis (D'Amico supra). Of the 1155 patients, 435 (37%) had compensated disease although 70% were asymptomatic at the beginning of the study. The remaining 720 patients (63%) had decompensated liver disease with 78% presenting with a history of ascites, 31% with jaundice, 17% had bleeding and 16% had encephalopathy. Hepatocellular carcinoma was observed in six (.5%) patients with compensated disease and in 30 (2.6%) patients with decompensated disease.

Over the course of six years, the patients with compensated cirrhosis developed clinical features of decompensated disease at a rate of 10% per year. In most cases, ascites was the first presentation of decompensation. In addition, hepatocellular carcinoma developed in 59 patients who initially presented with compensated disease by the end of the six-year study.

With respect to survival, the D'Amico study indicated that the five-year survival rate for all patients on the study was only 40%. The six-year survival rate for the patients who initially had compensated cirrhosis was 54%, while the six-year survival rate for patients who initially presented with decompensated disease was only 21%. There were no significant differences in the survival rates between the patients who had alcoholic cirrhosis and the patients with viral related cirrhosis. The major causes of death for the patients in the D'Amico study were liver failure in 49%; hepatocellular carcinoma in 22%; and, bleeding in 13% (D'Amico supra).

Chronic Hepatitis C is a slowly progressing inflammatory disease of the liver, mediated by a virus (HCV) that can lead to cirrhosis, liver failure and/or hepatocellular carcinoma over a period of 10 to 20 years. In the US, it is estimated that infection with HCV accounts for 50,000 new cases of acute hepatitis in the United States each year (NIH Consensus Development Conference Statement on Management of Hepatitis C March 1997). The prevalence of HCV in the United States is estimated at 1.8% and the CDC places the number of chronically infected Americans at approximately 4.5 million people. The CDC also estimates that up to 10,000 deaths per year are caused by chronic HCV infection. The prevalence of HCV in the United States is estimated at 1.8% and the CDC places the number of chronically infected Americans at approximately 4.5 million people. The CDC also estimates that up to 10,000 deaths per year are caused by chronic HCV infection.

Numerous well controlled clinical trials using interferon (IFN-alpha) in the treatment of chronic HCV infection have demonstrated that treatment three times a week results in lowering of serum ALT values in approximately 50% (range 40% to 70%) of patients by the end of 6 months of therapy (Davis et al., New England Journal of Medicine 1989; 321:1501-1506; Marcellin et al., Hepatology. 1991; 13:393-397; Tong et al., Hepatology 1997:26:747-754; Tong et al., Hepatology 1997 26(6): 1640-1645). However, following cessation of interferon treatment, approximately 50% of the responding patients relapsed, resulting in a "durable" response rate as assessed by normalization of serum ALT concentrations of approximately 20 to 25%.

In recent years, direct measurement of the HCV RNA has become possible through use of either the branched-DNA or Reverse Transcriptase Polymerase Chain Reaction (RT-PCR) analysis. In general, the RT-PCR methodology is more sensitive and leads to more accurate assessment of the clinical course (Tong et al., supra). Studies that have examined six months of type 1 interferon therapy using changes in HCV RNA values as a clinical endpoint have demonstrated that up to 35% of patients will have a loss of HCV RNA by the end of therapy (Marcellin et al., supra). However, as with the ALT endpoint, about 50% of the patients relapse six months following cessation of therapy resulting in a durable virologic response of only 12% (Marcellin et al., supra). Studies that have examined 48 weeks of therapy have demonstrated that the sustained virological response is up to 25% (NIH consensus statement: 1997). Thus, standard of care for treatment of chronic HCV infection with type 1 interferon is now 48 weeks of therapy using changes in HCV RNA concentrations as the primary assessment of efficacy (Hoofnagle et al., New England Journal of Medicine 1997; 336(5) 347-356).

Side effects resulting from treatment with type 1 interferons can be divided into four general categories, which include 1. Influenza-like symptoms; 2. Neuropsychiatric; 3. Laboratory abnormalities; and, 4. Miscellaneous (Dusheiko et al., Journal of Viral Hepatitis. 1994:1:3-5). Examples of influenza-like symptoms include; fatigue, fever; myalgia; malaise; appetite loss; tachycardia; rigors; headache and arthralgias. The influenza-like symptoms are usually short-lived and tend to abate after the first four weeks of dosing (Dushieko et al., supra). Neuropsychiatric side effects include: irritability, apathy; mood changes; insomnia; cognitive changes and depression. The most important of these neuropsychiatric side effects is depression and patients who have a history of depression should not be given type 1 interferon. Laboratory abnormalities include; reduction in myeloid cells including granulocytes, platelets and to a lesser extent red blood cells. These changes in blood cell counts rarely lead to any significant clinical sequellae (Dushieko et al., supra). In addition, increases in triglyceride concentrations and elevations in serum alanine and aspartate aminotransferase concentration have been observed. Finally, thyroid abnormalities have been reported. These thyroid abnormalities are usually reversible after cessation of interferon

therapy and can be controlled with appropriate medication while on therapy. Miscellaneous side effects include nausea; diarrhea; abdominal and back pain; pruritus; alopecia; and rhinorrhea. In general, most side effects will abate after 4 to 8 weeks of therapy (Dushieko et al., supra).

Type 1 Interferon is a key constituent of many treatment programs for chronic HCV infection. Treatment with type 1 interferon induces a number of genes and results in an antiviral state within the cell. One of the genes induced is 2', 5' oligoadenylate synthetase, an enzyme that synthesizes short 2', 5' oligoadenylate (2-5A) molecules. Nascent 2-5A subsequently activates a latent RNase, RNase L, which in turn nonspecifically degrades viral RNA.

Chronic hepatitis B is caused by an enveloped virus, commonly known as the hepatitis B virus or HBV. HBV is transmitted via infected blood or other body fluids, especially saliva and semen, during delivery, sexual activity, or sharing of needles contaminated by infected blood. Individuals may be "carriers" and transmit the infection to others without ever having experienced symptoms of the disease. Persons at highest risk are those with multiple sex partners, those with a history of sexually transmitted diseases, parenteral drug users, infants born to infected mothers, "close" contacts or sexual partners of infected persons, and healthcare personnel or other service employees who have contact with blood. Transmission is also possible via tattooing, ear or body piercing, and acupuncture; the virus is also stable on razors, toothbrushes, baby bottles, eating utensils, and some hospital equipment such as respirators, scopes and instruments. There is no evidence that HBsAg positive food handlers pose a health risk in an occupational setting, nor should they be excluded from work. Hepatitis B has never been documented as being a food-borne disease. The average incubation period is 60 to 90 days, with a range of 45 to 180; the number of days appears to be related to the amount of virus to which the person was exposed. However, determining the length of incubation is difficult, since onset of symptoms is insidious. Approximately 50% of patients develop symptoms of acute hepatitis that last from 1 to 4 weeks. Two percent or less of these individuals develop fulminant hepatitis resulting in liver failure and death.

The determinants of severity include: (1) The size of the dose to which the person was exposed; (2) the person's age with younger patients experiencing a milder form of the disease; (3) the status of the immune system with those who are immunosuppressed experiencing milder cases; and (4) the presence or absence of co-infection with the Delta virus (hepatitis D), with more severe cases resulting from co-infection. In symptomatic cases, clinical signs include loss of appetite, nausea, vomiting, abdominal pain in the right upper quadrant, arthralgia, and tiredness/loss of energy. Jaundice is not experienced in all

cases, however, jaundice is more likely to occur if the infection is due to transfusion or percutaneous serum transfer, and it is accompanied by mild pruritus in some patients. Bilirubin elevations are demonstrated in dark urine and clay-colored stools, and liver enlargement may occur accompanied by right upper-quadrant pain. The acute phase of the disease may be accompanied by severe depression, meningitis, Guillain-Barré syndrome, myelitis, encephalitis, agranulocytosis, and/or thrombocytopenia.

Hepatitis B is generally self-limiting and will resolve in approximately 6 months. Asymptomatic cases can be detected by serologic testing, since the presence of the virus leads to production of large amounts of HBsAg in the blood. This antigen is the first and most useful diagnostic marker for active infections. However, if HBsAg remains positive for 20 weeks or longer, the person is likely to remain positive indefinitely and is now a carrier. While only 10% of persons over age 6 who contract HBV become carriers, 90% of infants infected during the first year of life do so.

Hepatitis B virus (HBV) infects over 300 million people worldwide (Imperial, 1999, Gastroenterol. Hepatol., 14 (suppl), S1-5). In the United States, approximately 1.25 million individuals are chronic carriers of HBV as evidenced by the fact that they have measurable hepatitis B virus surface antigen HBsAg in their blood. The risk of becoming a chronic HBsAg carrier is dependent upon the mode of acquisition of infection as well as the age of the individual at the time of infection. For those individuals with high levels of viral replication, chronic active hepatitis with progression to cirrhosis, liver failure and hepatocellular carcinoma (HCC) is common, and liver transplantation is the only treatment option for patients with end-stage liver disease from HBV.

The natural progression of chronic HBV infection over a 10 to 20 year period leads to cirrhosis in 20-to-50% of patients and progression of HBV infection to hepatocellular carcinoma has been well documented. There have been no studies that have determined subpopulations that are most likely to progress to cirrhosis and/or hepatocellular carcinoma, thus all patients have equal risk of progression.

It is important to note that the survival for patients diagnosed with hepatocellular carcinoma is only 0.9 to 12.8 months from initial diagnosis (Takahashi et al., 1993, American Journal of Gastroenterology, 88, 240-243). Treatment of hepatocellular carcinoma with chemotherapeutic agents has not proven effective and only 10% of patients will benefit from surgery due to extensive tumor invasion of the liver (Trinchet et al., 1994, Presse Medicine, 23, 831-833). Given the aggressive nature of primary hepatocellular carcinoma, the only viable treatment alternative to surgery is liver transplantation (Pichlmayr et al., 1994, Hepatology., 20, 33S-40S).

Upon progression to cirrhosis, patients with chronic HCV and HBV infection present with clinical features, which are common to clinical cirrhosis regardless of the initial cause (D'Amico et al., 1986, Digestive Diseases and Sciences, 31, 468-475). These clinical features may include: bleeding esophageal varices, ascites, jaundice, and encephalopathy (Zakim D, Boyer TD. Hepatology a textbook of liver disease, Second Edition Volume 1. 1990 W.B. Saunders Company. Philadelphia). In the early stages of cirrhosis, patients are classified as compensated, meaning that although liver tissue damage has occurred, the patient's liver is still able to detoxify metabolites in the blood-stream. In addition, most patients with compensated liver disease are asymptomatic and the minority with symptoms report only minor symptoms such as dyspepsia and weakness. In the later stages of cirrhosis, patients are classified as decompensated meaning that their ability to detoxify metabolites in the bloodstream is diminished and it is at this stage that the clinical features described above will present.

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Hepatitis B virus is a double-stranded circular DNA virus. It is a member of the Hepadnaviridae family. The virus consists of a central core that contains a core antigen (HBcAg) surrounded by an envelope containing a surface protein/surface antigen (HBsAg)

and is 42 nm in diameter. It also contains an e antigen (HBeAg), which, along with HBcAg and HBsAg, is helpful in identifying this disease.

In HBV virions, the genome is found in an incomplete double-stranded form. HBV uses a reverse transcriptase to transcribe a positive-sense full length RNA version of its genome back into DNA. This reverse transcriptase also contains DNA polymerase activity and thus begins replicating the newly synthesized minus-sense DNA strand. However, it appears that the core protein encapsidates the reverse-transcriptase/polymerase before it completes replication.

From the free-floating form, the virus must first attach itself specifically to a host cell membrane. Viral attachment is one of the crucial steps that determines host and tissue specificity. However, currently there are no *in vitro* cell-lines that can be infected by HBV. There are some cells lines, such as HepG2, which can support viral replication only upon transient or stable transfection using HBV DNA.

After attachment, fusion of the viral envelope and host membrane must occur to allow the viral core proteins containing the genome and polymerase to enter the cell. Once inside, the genome is translocated to the nucleus where it is repaired and cyclized.

The complete closed circular DNA genome of HBV remains in the nucleus and gives rise to four transcripts. These transcripts initiate at unique sites but share the same 3'-ends. The 3.5-kb pregenomic RNA serves as a template for reverse transcription and also encodes the nucleocapsid protein and polymerase. A subclass of this transcript with a 5'-end extension codes for the precore protein that, after processing, is secreted as HBV e antigen. The 2.4-kb RNA encompasses the pre-S1 open reading frame (ORF) that encodes the large surface protein. The 2.1-kb RNA encompasses the pre-S2 and S ORFs that encode the middle and small surface proteins, respectively. The smallest transcript (~0.8-kb) codes for the X protein, a transcriptional activator.

Multiplication of the HBV genome begins within the nucleus of an infected cell. RNA polymerase II transcribes the circular HBV DNA into greater-than-full length mRNA. Since the mRNA is longer than the actual complete circular DNA, redundant ends are formed. Once produced, the pregenomic RNA exits the nucleus and enters the cytoplasm.

The packaging of pregenomic RNA into core particles is triggered by the binding of the HBV polymerase to the 5' epsilon stem-loop. RNA encapsidation is believed to occur as soon as binding occurs. The HBV polymerase also appears to require associated core protein in order to function. The HBV polymerase initiates reverse transcription from the 5' epsilon stem-loop three to four base pairs at which point the polymerase and attached nascent DNA

are transferred to the 3' copy of the DR1 region. Once there, the (-)DNA is extended by the HBV polymerase while the RNA template is degraded by the HBV polymerase RNAse H activity. When the HBV polymerase reaches the 5' end, a small stretch of RNA is left undigested by the RNAse H activity. This segment of RNA is comprised of a small sequence just upstream and including the DR1 region. The RNA oligomer is then translocated and annealed to the DR2 region at the 5' end of the (-)DNA. It is used as a primer for the (+)DNA synthesis which is also generated by the HBV polymerase. It appears that the reverse transcription as well as plus strand synthesis may occur in the completed core particle.

Since the pregenomic RNA is required as a template for DNA synthesis, this RNA is an excellent target for nucleic acid based therapeutics. Nucleoside analogues that have been documented to modulate HBV replication target the reverse transcriptase activity needed to convert the pregenomic RNA into DNA. Nucleic acid decoy and aptamer modulation of HBV reverse transcriptase would be expected to result in a similar modulation of HBV replication.

Current therapeutic goals of treatment are three-fold: to eliminate infectivity and transmission of HBV to others, to arrest the progression of liver disease and improve the clinical prognosis, and to prevent the development of hepatocellular carcinoma (HCC).

Interferon alpha use is the most common therapy for HBV; however, recently Lamivudine (3TC®) has been approved by the FDA. Interferon alpha (IFN-alpha) is one treatment for chronic hepatitis B. The standard duration of IFN-alpha therapy is 16 weeks, however, the optimal treatment length is still poorly defined. A complete response (HBV DNA negative HBeAg negative) occurs in approximately 25% of patients. Several factors have been identified that predict a favorable response to therapy including: High ALT, low HBV DNA, being female, and heterosexual orientation.

There is also a risk of reactivation of the hepatitis B virus even after a successful response, this occurs in around 5% of responders and normally occurs within 1 year.

Side effects resulting from treatment with type 1 interferons can be divided into four general categories including: Influenza-like symptoms, neuropsychiatric, laboratory abnormalities, and other miscellaneous side effects. Examples of influenza-like symptoms include, fatigue, fever, myalgia, malaise, appetite loss, tachycardia, rigors, headache and arthralgias. The influenza-like symptoms are usually short-lived and tend to abate after the first four weeks of dosing (Dusheiko et al., 1994, Journal of Viral Hepatitis, 1, 3-5). Neuropsychiatric side effects include irritability, apathy, mood changes, insomnia, cognitive

changes, and depression. Laboratory abnormalities include the reduction of myeloid cells, including granulocytes, platelets and to a lesser extent, red blood cells. These changes in blood cell counts rarely lead to any significant clinical sequellae. In addition, increases in triglyceride concentrations and elevations in serum alanine and aspartate aminotransferase concentration have been observed. Finally, thyroid abnormalities have been reported. These thyroid abnormalities are usually reversible after cessation of interferon therapy and can be controlled with appropriate medication while on therapy. Miscellaneous side effects include nausea, diarrhea, abdominal and back pain, pruritus, alopecia, and rhinorrhea. In general, most side effects will abate after 4 to 8 weeks of therapy (Dushieko et al., supra).

Lamivudine (3TC®) is a nucleoside analogue, which is a very potent and specific inhibitor of HBV DNA synthesis. Lamivudine has recently been approved for the treatment of chronic Hepatitis B. Unlike treatment with interferon, treatment with 3TC® does not eliminate the HBV from the patient. Rather, viral replication is controlled and chronic administration results in improvements in liver histology in over 50% of patients. Phase III studies with 3TC®, showed that treatment for one year was associated with reduced liver inflammation and a delay in scarring of the liver. In addition, patients treated with Lamivudine (100mg per day) had a 98 percent reduction in hepatitis B DNA and a significantly higher rate of seroconversion, suggesting disease improvements after completion of therapy. However, stopping of therapy resulted in a reactivation of HBV replication in most patients. In addition recent reports have documented 3TC® resistance in approximately 30% of patients.

Current therapies for treating HBV infection, including interferon and nucleoside analogues, are only partially effective. In addition, drug resistance to nucleoside analogues is now emerging, making treatment of chronic Hepatitis B more difficult. Thus, a need exists for effective treatment of this disease that utilizes antiviral modulators that work by mechanisms other than those currently utilized in the treatment of both acute and chronic hepatitis B infections.

Welch et al., Gene Therapy 1996 3(11): 994-1001 describe in vitro an in vivo studies with two vector expressed hairpin ribozymes targeted against hepatitis C virus.

Sakamoto et al., J. Clinical Investigation 1996 98(12): 2720-2728 describe intracellular cleavage of hepatitis C virus RNA and inhibition of viral protein translation by certain vector expressed hammerhead ribozymes.

Lieber et al., J. Virology 1996 70(12): 8782-8791 describe elimination of hepatitis C virus RNA in infected human hepatocytes by adenovirus-mediated expression of certain hammerhead ribozymes.

Ohkawa et al., 1997, J. Hepatology, 27; 78-84, describe in vitro cleavage of HCV RNA and inhibition of viral protein translation using certain in vitro transcribed hammerhead ribozymes.

Barber et al., International PCT Publication No. WO 97/32018, describe the use of an adenovirus vector to express certain anti-hepatitis C virus hairpin ribozymes.

Kay et al., International PCT Publication No. WO 96/18419, describe certain recombinant adenovirus vectors to express anti-HCV hammerhead ribozymes.

Yamada et al., Japanese Patent Application No. JP 07231784 describe a specific poly-(L)-lysine conjugated hammerhead ribozyme targeted against HCV.

Draper, U.S. Patent Nos. 5,610,054 and 5,869,253, describes enzymatic nucleic acid molecules capable of inhibiting replication of HCV.

Macejak. et al., 2000, Hepatology, 31, 769-776, describe enzymatic nucleic acid molecules capable of inhibiting replication of HCV.

Weifeng and Torrence, 1997, *Nucleosides and Nucleotides*, 16, 7-9, describe the synthesis of 2-5A antisense chimeras with various non-nucleoside components.

Torrence et al., US patent No. 5,583,032 describe targeted cleavage of RNA using an antisense oligonulceotide linked to a 2',5'-oligoadenylate activator of RNase L.

Suhadolnik and Pfleiderer, US patent Nos. 5,863,905; 5,700,785; 5,643,889; 5,556,840; 5,550,111; 5,405,939; 5,188,897; 4,924,624; and 4,859,768 describe specific internucleotide phosphorothioate 2',5'-oligoadenlyates and 2',5'-oligoadenlyate conjugates.

Budowsky et al., US patent No. 5,962,431 describe a method of treating papillomavirus using specific 2',5'-oligoadenylates.

Torrence et al., International PCT publication No. WO 00/14219, describe specific peptide nucleic acid 2',5'-oligoadenylate chimeric molecules.

Stinchcomb *et al.*, US patent No. 5,817,796, describe C-myb ribozymes having 2'-5'-Linked Adenylate Residues.

Draper, US patent No. 6,017,756, describes the use of ribozymes for the inhibition of Hepatitis B Virus.

Passman et al., 2000, Biochem. Biophys. Res. Commun., 268(3), 728-733.; Gan et al., 1998, J. Med. Coll. PLA, 13(3), 157-159.; Li et al., 1999, Jiefangjun Yixue Zazhi, 24(2), 99-

101.; Putlitz et al., 1999, J. Virol., 73(7), 5381-5387.; Kim et al., 1999, Biochem. Biophys. Res. Commun., 257(3), 759-765.; Xu et al., 1998, Bingdu Xuebao, 14(4), 365-369.; Welch et al., 1997, Gene Ther., 4(7), 736-743.; Goldenberg et al., 1997, International PCT publication No. WO 97/08309, Wands et al., 1997, J. of Gastroenterology and Hepatology, 12(suppl.), S354-S369.; Ruiz et al., 1997, BioTechniques, 22(2), 338-345.; Gan et al., 1996, J. Med. Coll. PLA, 11(3), 171-175.; Beck and Nassal, 1995, Nucleic Acids Res., 23(24), 4954-62.; Goldenberg, 1995, International PCT publication No. WO 95/22600.; Xu et al., 1993, Bingdu Xuebao, 9(4), 331-6.; Wang et al., 1993, Bingdu Xuebao, 9(3), 278-80, all describe ribozymes that are targeted to cleave a specific HBV target site.

Hunt et al., US patent No. 5,859,226, describes specific non-naturally occurring oligonucleotide decoys intended to inhibit the expression of MHC-II genes through binding of the RF-X transcription factor, that can inhibit the expression of certain HBV and CMV viral proteins.

Kao et al., International PCT Publication No. WO 00/04141, describes linear single stranded nucleic acid molecules capable of specifically binding to viral polymerases and inhibiting the activity of the viral polymerase.

Lu, International PCT Publication No. WO 99/20641, describes specific triplex-forming oligonucleotides used in treating HBV infection.

SUMMARY OF THE INVENTION

This invention relates to enzymatic nucleic acid molecules that can disrupt the function of RNA species of hepatitis B virus (HBV), hepatitis C virus (HCV) and/or those RNA species encoded by HBV or HCV. In particular, applicant provides enzymatic nucleic acid molecules capable of specifically cleaving HBV RNA or HCV RNA and describes the selection and function thereof. Such enzymatic nucleic acid molecules can be used to treat diseases and disorders associated with HBV and HCV infection.

In one embodiment, the invention features an enzymatic nucleic acid molecule that specifically cleaves RNA derived from hepatitis B virus (HBV), wherein the enzymatic nucleic acid molecule comprises sequence defined as Seq. ID No. 10887.

In another embodiment, the invention features a composition comprising an enzymatic nucleic acid molecule of the invention and a pharmaceutically acceptable carrier.

In another embodiment, the invention features a mammalian cell, for example a human cell, comprising an enzymatic nucleic acid molecule contemplated by the invention.

In one embodiment, the invention features a method for the treatment of cirrhosis, liver failure or hepatocellular carcinoma comprising administering to a patient an enzymatic nucleic acid molecule of the invention under conditions suitable for the treatment.

In another embodiment, the invention features a method for the treatment of a patient having a condition associated with HBV and/or HCV infection, comprising contacting cells of said patient with an enzymatic nucleic acid molecule of the invention.

In another embodiment, the invention features a method for the treatment of a patient having a condition associated with HBV and/or HCV infection, comprising contacting cells of said patient with an enzymatic nucleic acid molecule of the invention and further comprising the use of one or more drug therapies, for example, type I interferon or 3TC® (lamivudine), under conditions suitable for said treatment. In another embodiment, the other therapy is administered simultaneously with or separately from the enzymatic nucleic acid molecule.

In another embodiment, the invention features a method for inhibiting HBV and/or HCV replication in a mammalian cell comprising administering to the cell an enzymatic nucleic acid molecule of the invention under conditions suitable for the inhibition.

In yet another embodiment, the invention features a method of cleaving a separate HBV and/or HCV RNA comprising contacting an enzymatic nucleic acid molecule of the invention with the separate RNA under conditions suitable for the cleavage of the separate RNA.

In one embodiment, cleavage by an enzymatic nucleic acid molecule of the invention is carried out in the presence of a divalent cation, for example Mg2+.

In another embodiment, the enzymatic nucleic acid molecule of the invention is chemically synthesized.

In another embodiment, the type I interferon contemplated by the invention is interferon alpha, interferon beta, polyethylene glycol interferon, polyethylene glycol interferon alpha 2a, polyethylene glycol interferon alpha 2b, polyethylene glycol consensus interferon.

In one embodiment, the invention features a composition comprising type I interferon and an enzymatic nucleic acid molecule of the invention and a pharmaceutically acceptable carrier.

In another embodiment, the invention features a method of administering to a cell, for example a mammalian cell or human cell, an enzymatic nucleic acid molecule of the

invention independently or in conjunction with other therapeutic compounds, such as type I interferon or 3TC® (lamivudine), comprising contacting the cell with the enzymatic nucleic acid molecule under conditions suitable for the administration.

In another embodiment, administration of an enzymatic nucleic acid molecule of the invention is in the presence of a delivery reagent, for example a lipid, cationic lipid, phospholipid, or liposome.

In another embodiment, the invention features novel nucleic acid-based techniques such as enzymatic nucleic acid molecules and antisense molecules and methods for their use to down regulate or inhibit the expression of HBV RNA and/or replication of HBV.

In another embodiment, the invention features novel nucleic acid-based techniques such as enzymatic nucleic acid molecules and antisense molecules and methods for their use to down regulate or inhibit the expression of HCV RNA and/or replication of HCV.

In one embodiment, the invention features the use of one or more of the enzymatic nucleic acid-based techniques to down-regulate or inhibit the expression of the genes encoding HBV and/or HCV viral proteins. Specifically, the invention features the use of enzymatic nucleic acid-based techniques to specifically down-regulate or inhibit the expression of the HBV and/or HCV viral genome.

In another embodiment, the invention features nucleic acid-based inhibitors (e.g., enzymatic nucleic acid molecules (ribozymes), antisense nucleic acids, triplex DNA, decoys, siRNA, aptamers, and antisense nucleic acids containing RNA cleaving chemical groups) and methods for their use to down regulate or inhibit the expression of RNA (e.g., HBV and/or HCV) capable of progression and/or maintenance of hepatitis, hepatocellular carcinoma, cirrhosis, and/or liver failure.

In one embodiment, nucleic acid molecules of the invention are used to treat HBV infected cells or an HBV infected patient wherein the HBV is resistant or the patient does not respond to treatment with 3TC® (Lamivudine), either alone or in combination with other therapies under conditions suitable for the treatment.

In yet another embodiment, the invention features the use of an enzymatic nucleic acid molecule, preferably in the hammerhead, NCH (Inozyme), G-cleaver, amberzyme, zinzyme, and/or DNAzyme motif, to inhibit the expression of HBV and/or HCV RNA.

The enzymatic nucleic acid molecules described herein exhibit a high degree of specificity for only the viral mRNA in infected cells. Nucleic acid molecules of the instant invention targeted to highly conserved sequence regions allow the treatment of many strains

of human HBV and/or HCV with a single compound. No treatment presently exists which specifically attacks expression of the viral gene(s) that are responsible for transformation of hepatocytes by HBV and/or HCV.

The enzymatic nucleic acid-based modulators of HBV and HCV expression are useful for the prevention of the diseases and conditions including HBV and HCV infection, hepatitis, cancer, cirrhosis, liver failure, and any other diseases or conditions that are related to the levels of HBV and/or HCV in a cell or tissue.

Preferred target sites are genes required for viral replication, a non-limiting example includes genes for protein synthesis, such as the 5' most 1500 nucleotides of the HBV pregenomic mRNAs. For sequence references, see Renbao et al., 1987, Sci. Sin., 30, 507. This region controls the translational expression of the core protein (C), X protein (X) and DNA polymerase (P) genes and plays a role in the replication of the viral DNA by serving as a template for reverse transcriptase. Disruption of this region in the RNA results in deficient protein synthesis as well as incomplete DNA synthesis (and inhibition of transcription from the defective genomes). Targeting sequences 5' of the encapsidation site can result in the inclusion of the disrupted 3' RNA within the core virion structure and targeting sequences 3' of the encapsidation site can result in the reduction in protein expression from both the 3' and 5' fragments.

Alternative regions outside of the 5' most 1500 nucleotides of the pregenomic mRNA also make suitable targets for enzymatic nucleic acid mediated inhibition of HBV replication. Such targets include the mRNA regions that encode the viral S gene. Selection of particular target regions will depend upon the secondary structure of the pregenomic mRNA. Targets in the minor mRNAs can also be used, especially when folding or accessibility assays in these other RNAs reveal additional target sequences that are unavailable in the pregenomic mRNA species.

A desirable target in the pregenomic RNA is a proposed bipartite stem-loop structure in the 3'-end of the pregenomic RNA which is believed to be critical for viral replication (Kidd and Kidd-Ljunggren, 1996. Nuc. Acid Res. 24:3295-3302). The 5'end of the HBV pregenomic RNA carries a cis-acting encapsidation signal, which has inverted repeat sequences that are thought to form a bipartite stem-loop structure. Due to a terminal redundancy in the pregenomic RNA, the putative stem-loop also occurs at the 3'-end. While it is the 5' copy which functions in polymerase binding and encapsidation, reverse transcription actually begins from the 3' stem-loop. To start reverse transcription, a 4 nt primer which is covalently attached to the polymerase is made, using a bulge in the 5' encapsidation signal as template. This primer is then shifted, by an unknown mechanism, to the DR1 primer binding site in the 3' stem-loop structure, and reverse transcription proceeds

from that point. The 3' stem-loop, and especially the DR1 primer binding site, appear to be highly effective targets for ribozyme intervention.

Sequences of the pregenomic RNA are shared by the mRNAs for surface, core, polymerase, and X proteins. Due to the overlapping nature of the HBV transcripts, all share a common 3'-end. Enzymatic nucleic acids targeting of this common 3'-end will thus cleave the pregenomic RNA as well as all of the mRNAs for surface, core, polymerase and X proteins.

At least seven basic varieties of naturally-occurring enzymatic RNAs are known presently. Each can catalyze the hydrolysis of RNA phosphodiester bonds in trans (and thus can cleave other RNA molecules) under physiological conditions. Table I summarizes some of the characteristics of these enzymatic RNA molecules. In general, enzymatic nucleic acids act by first binding to a target RNA. Such binding occurs through the target binding portion of a enzymatic nucleic acid which is held in close proximity to an enzymatic portion of the molecule that acts to cleave the target RNA. Thus, the enzymatic nucleic acid first recognizes and then binds a target RNA through complementary base-pairing, and once bound to the correct site, acts enzymatically to cut the target RNA. Strategic cleavage of such a target RNA will destroy its ability to direct synthesis of an encoded protein. After an enzymatic nucleic acid has bound and cleaved its RNA target, it is released from that RNA to search for another target and can repeatedly bind and cleave new targets. Thus, a single enzymatic nucleic acid molecule is able to cleave many molecules of target RNA. In addition, the enzymatic nucleic acid is a highly specific inhibitor of gene expression, with the specificity of inhibition depending not only on the base-pairing mechanism of binding to the target RNA, but also on the mechanism of target RNA cleavage. Single mismatches, or basesubstitutions, near the site of cleavage can completely eliminate catalytic activity of a an enzymatic nucleic acid molecule.

The enzymatic nucleic acid molecules that cleave the specified sites in HBV-specific RNAs represent a novel therapeutic approach to treat a variety of pathologic indications, including, HBV infection, hepatitis, hepatocellular carcinoma, tumorigenesis, cirrhosis, liver failure and other conditions related to the level of HBV.

In one of the preferred embodiments of the inventions described herein, the enzymatic nucleic acid molecule is formed in a hammerhead or hairpin motif, but can also be formed in the motif of a hepatitis delta virus, group I intron, group II intron or RNase P RNA (in association with an RNA guide sequence), Neurospora VS RNA, DNAzymes, NCH cleaving motifs, or G-cleavers. Examples of such hammerhead motifs are described by Dreyfus, supra, Rossi et al., 1992, AIDS Research and Human Retroviruses 8, 183. Examples of hairpin motifs are described by Hampel et al., EP0360257, Hampel and Tritz, 1989

Biochemistry 28, 4929, Feldstein et al., 1989, Gene 82, 53, Haseloff and Gerlach, 1989, Gene, 82, 43, Hampel et al., 1990 Nucleic Acids Res. 18, 299; and Chowrira & McSwiggen, US. Patent No. 5,631,359. The hepatitis delta virus motif is described by Perrotta and Been, 1992 Biochemistry 31, 16. The RNase P motif is described by Guerrier-Takada et al., 1983 Cell 35, 849; Forster and Altman, 1990, Science 249, 783; and Li and Altman, 1996, Nucleic Acids Res. 24, 835. The Neurospora VS RNA ribozyme motif is described by Collins (Saville and Collins, 1990 Cell 61, 685-696; Saville and Collins, 1991 Proc. Natl. Acad. Sci. USA 88, 8826-8830; Collins and Olive, 1993 Biochemistry 32, 2795-2799; and Guo and Collins, 1995, EMBO. J. 14, 363). Group II introns are described by Griffin et al., 1995, Chem. Biol. 2, 761; Michels and Pyle, 1995, Biochemistry 34, 2965; and Pyle et al., International PCT Publication No. WO 96/22689. The Group I intron is described by Cech et al., U.S. Patent 4,987,071. DNAzymes are described by Usman et al., International PCT Publication No. WO 95/11304; Chartrand et al., 1995, NAR 23, 4092; Breaker et al., 1995, Chem. Bio. 2, 655; and Santoro et al., 1997, PNAS 94, 4262. NCH cleaving motifs are described in Ludwig & Sproat, International PCT Publication No. WO 98/58058; and Gcleavers are described in Kore et al., 1998, Nucleic Acids Research 26, 4116-4120 and Eckstein et al., International PCT Publication No. WO 99/16871. Additional motifs include the Aptazyme (Breaker et al., WO 98/43993), Amberzyme (Class I motif; Figure 3; Beigelman et al., International PCT publication No. WO 99/55857) and Zinzyme (Beigelman et al., International PCT publication No. WO 99/55857), all these references are incorporated by reference herein in their totalities, including drawings and can also be used in the present invention. These specific motifs are not limiting in the invention and those skilled in the art will recognize that all that is important in an enzymatic nucleic acid molecule of this invention is that it has a specific substrate binding site which is complementary to one or more of the target gene RNA regions, and that it have nucleotide sequences within or surrounding that substrate binding site which impart an RNA cleaving activity to the molecule (Cech et al., U.S. Patent No. 4,987,071).

In preferred embodiments of the present invention, a nucleic acid molecule, e.g., an antisense molecule, a triplex DNA, or a ribozyme, is 13 to 100 nucleotides in length, e.g., in specific embodiments 35, 36, 37, or 38 nucleotides in length (e.g., for particular ribozymes or antisense). In particular embodiments, the nucleic acid molecule is 15-100, 17-100, 20-100, 21-100, 23-100, 25-100, 27-100, 30-100, 32-100, 35-100, 40-100, 50-100, 60-100, 70-100, or 80-100 nucleotides in length. Instead of 100 nucleotides being the upper limit on the length ranges specified above, the upper limit of the length range can be, for example, 30, 40, 50, 60, 70, or 80 nucleotides. Thus, for any of the length ranges, the length range for particular embodiments has lower limit as specified, with an upper limit as specified which is greater than the lower limit. For example, in a particular embodiment, the length range can be 35-50 nucleotides in length. All such ranges are expressly included. Also in particular

embodiments, a nucleic acid molecule can have a length which is any of the lengths specified above, for example, 21 nucleotides in length.

Exemplary enzymatic nucleic acid molecules of the invention targeting HBV are shown in Tables V-XI. For example, enzymatic nucleic acid molecules of the invention are preferably between 15 and 50 nucleotides in length, more preferably between 25 and 40 nucleotides in length, e.g., 34, 36, or 38 nucleotides in length (for example see Jarvis et al., 1996, J. Biol. Chem., 271, 29107-29112). Exemplary DNAzymes of the invention are preferably between 15 and 40 nucleotides in length, more preferably between 25 and 35 nucleotides in length, e.g., 29, 30, 31, or 32 nucleotides in length (see for example Santoro et al., 1998, Biochemistry, 37, 13330-13342; Chartrand et al., 1995, Nucleic Acids Research, 23, 4092-4096). Exemplary antisense molecules of the invention are preferably between 15 and 75 nucleotides in length, more preferably between 20 and 35 nucleotides in length, e.g., 25, 26, 27, or 28 nucleotides in length (see for example Woolf et al., 1992, PNAS., 89, 7305-7309; Milner et al., 1997, Nature Biotechnology, 15, 537-541). Exemplary triplex forming oligonucleotide molecules of the invention are preferably between 10 and 40 nucleotides in length, more preferably between 12 and 25 nucleotides in length, e.g., 18, 19, 20, or 21 nucleotides in length (see for example Maher et al., 1990, Biochemistry, 29, 8820-8826; Strobel and Dervan, 1990, Science, 249, 73-75). Those skilled in the art will recognize that all that is required is for the nucleic acid molecule are of length and conformation sufficient and suitable for the nucleic acid molecule to catalyze a reaction contemplated herein. The length of the nucleic acid molecules of the instant invention are not limiting within the general limits stated.

In a preferred embodiment, the invention provides a method for producing a class of nucleic acid—based gene inhibiting agents which exhibit a high degree of specificity for the RNA of a desired target. For example, the enzymatic nucleic acid molecule is preferably targeted to a highly conserved sequence region of target RNAs encoding HBV proteins (specifically HBV RNA) such that specific treatment of a disease or condition can be provided with either one or several nucleic acid molecules of the invention. Such nucleic acid molecules can be delivered exogenously to specific tissue or cellular targets as required. Alternatively, the nucleic acid molecules (e.g., ribozymes and antisense) can be expressed from DNA and/or RNA vectors that are delivered to specific cells.

The enzymatic nucleic acid-based inhibitors of HBV expression are useful for the prevention of the diseases and conditions including HBV infection, hepatitis, cancer, cirrhosis, liver failure, and any other diseases or conditions that are related to the levels of HBV in a cell or tissue.

The nucleic acid-based inhibitors of the invention are added directly, or can be complexed with cationic lipids, packaged within liposomes, or otherwise delivered to target cells or tissues. The nucleic acid or nucleic acid complexes can be locally administered to relevant tissues ex vivo, or in vivo through injection, infusion pump or stent, with or without their incorporation in biopolymers. In preferred embodiments, the enzymatic nucleic acid HBV inhibitors comprise sequences, which are complementary to the substrate sequences in. Examples of such enzymatic nucleic acid molecules also are shown in. Examples of such enzymatic nucleic acid molecules consist essentially of sequences defined in these tables.

In yet another embodiment, the invention features antisense nucleic acid molecules including sequences complementary to the HBV substrate sequences shown in. Such nucleic acid molecules can include sequences as shown for the binding arms of the enzymatic nucleic acid molecules in. Similarly, triplex molecules can be provided targeted to the corresponding DNA target regions, and regions containing the DNA equivalent of a target sequence or a sequence complementary to the specified target (substrate) sequence. Typically, antisense molecules are complementary to a target sequence along a single contiguous sequence of the antisense molecule. However, in certain embodiments, an antisense molecule can bind to substrate such that the substrate molecule forms a loop, and/or an antisense molecule can be complementary to two (or even more) non-contiguous substrate sequences or two (or even more) non-contiguous sequence portions of an antisense molecule can be complementary to a target sequence or both.

By "consists essentially of" is meant that the active nucleic acid molecule of the invention, for example, an enzymatic nucleic acid molecule, contains an enzymatic center or core equivalent to those in the examples, and binding arms able to bind RNA such that cleavage at the target site occurs. Other sequences can be present which do not interfere with such cleavage. Thus, a core region can, for example, include one or more loops, stem-loop structure, or linker which does not prevent enzymatic activity. Thus, the underlined regions in the sequences in can be such a loop, stem-loop, nucleotide linker, and/or non-nucleotide linker and can be represented generally as sequence "X". For example, a core sequence for a hammerhead enzymatic nucleic acid can comprise a conserved sequence, such as 5'-CUGAUGAG-3' and 5'-CGAA-3' connected by "X", where X is 5'-GCCGUUAGGC-3' (SEQ ID NO. 16201), or any other Stem II region known in the art, or a nucleotide and/or non-nucleotide linker. Similarly, for other nucleic acid molecules of the instant invention, such as Inozyme, G-cleaver, amberzyme, zinzyme, DNAzyme, antisense, 2-5A antisense, triplex forming nucleic acid, and decoy nucleic acids, other sequences or non-nucleotide linkers can be present that do not interfere with the function of the nucleic acid molecule.

In another aspect of the invention, enzymatic nucleic acids or antisense molecules that interact with target RNA molecules and inhibit HBV (specifically HBV RNA) activity are expressed from transcription units inserted into DNA or RNA vectors. The recombinant vectors are preferably DNA plasmids or viral vectors. Enzymatic nucleic acid or antisense expressing viral vectors can be constructed based on, but not limited to, adeno-associated virus, retrovirus, adenovirus, or alphavirus. Preferably, the recombinant vectors capable of expressing the enzymatic nucleic acids or antisense are delivered as described above, and persist in target cells. Alternatively, viral vectors can be used that provide for transient expression of enzymatic nucleic acids or antisense. Such vectors can be repeatedly administered as necessary. Once expressed, the enzymatic nucleic acids or antisense bind to the target RNA and inhibit its function or expression. Delivery of enzymatic nucleic acids or antisense expressing vectors can be systemic, such as by intravenous or intramuscular administration, by administration to target cells ex-planted from the patient followed by reintroduction into the patient, or by any other means that allow for introduction into the desired target cell. Antisense DNA can be expressed via the use of a single stranded DNA. intracellular expression vector.

In another embodiment, the invention features nucleic acid-based inhibitors (e.g., enzymatic nucleic acid molecules (ribozymes), antisense nucleic acids, triplex DNA, decoys, aptamers, siRNA, antisense nucleic acids containing RNA cleaving chemical groups) and methods for their use to down regulate or inhibit the expression of RNA (e.g., HBV) capable of progression and/or maintenance of liver disease and failure.

In another embodiment, the invention features nucleic acid-based techniques (e.g., enzymatic nucleic acid molecules (ribozymes), antisense nucleic acids, triplex DNA, decoys, aptamers, siRNA, antisense nucleic acids containing RNA cleaving chemical groups) and methods for their use to down regulate or inhibit the expression of HBV RNA expression.

In other embodiments, the invention features a method for the analysis of HBV proteins. This method is useful in determining the efficacy of HBV inhibitors. Specifically, the instant invention features an assay for the analysis of HBsAg proteins and secreted alkaline phosphatase (SEAP) control proteins to determine the efficacy of agents used to modulate HBV expression.

The method consists of coating a micro-titer plate with an antibody such as anti-HBsAg Mab (for example, Biostride B88-95-31ad,ay) at 0.1 to 10 µg/ml in a buffer (for example, carbonate buffer, such as Na₂CO₃ 15 mM, NaHCO₃ 35 mM, pH 9.5) at 4°C overnight. The microtiter wells are then washed with PBST or the equivalent thereof, (for example, PBS, 0.05% Tween 20) and blocked for 0.1-24 hr at 37° C with PBST, 1% BSA or the equivalent thereof. Following washing as above, the wells are dried (for example, at 37° C for 30 min).

Biotinylated goat anti-HBsAg or an equivalent antibody (for example, Accurate YVS1807) is diluted (for example at 1:1000) in PBST and incubated in the wells (for example, 1 hr. at 37°. C). The wells are washed with PBST (for example, 4x). A conjugate, (for example, Streptavidin/Alkaline Phosphatase Conjugate, Pierce 21324) is diluted to 10-10,000 ng/ml in PBST, and incubated in the wells (for example, 1 hr. at 37° C). After washing as above, a substrate (for example, p-nitrophenyl phosphate substrate, Pierce 37620) is added to the wells, which are then incubated (for example, 1 hr. at 37° C). The optical density is then determined (for example, at 405 nm). SEAP levels are then assayed, for example, using the Great EscAPe® Detection Kit (Clontech K2041-1), as per the manufacturers instructions. In the above example, incubation times and reagent concentrations can be varied to achieve optimum results, a non-limiting example is described in Example 6.

Comparison of this HBsAg ELISA method to a commercially available assay from World Diagnostics, Inc. 15271 NW 60th Ave, #201, Miami Lakes, FL 33014 (305) 827-3304 (Cat. No. EL10018) demonstrates an increase in sensitivity (signal:noise) of 3-20 fold.

This invention also relates to nucleic acid molecules directed to disrupt the function of HBV reverse transcriptase. In addition, the invention relates to nucleic acid molecules directed to disrupt the function of the Enhancer I core region of the HBV genomic DNA. In particular, the present invention describes the selection and function of nucleic acid molecules, such as decoys and aptamers, capable of specifically binding to the HBV reverse. transcriptase (pol) primer and modulating reverse transcription of the HBV pregenomic RNA. In another embodiment, the present invention relates to nucleic acid molecules, such as decoys, antisense and aptamers, capable of specifically binding to the HBV reverse transcriptase (pol) and modulating reverse transcription of the HBV pregenomic RNA. In yet another embodiment, the present invention relates to nucleic acid molecules capable of. specifically binding to the HBV Enhancer I core region and modulating transcription of the HBV genomic DNA. The invention further relates to allosteric enzymatic nucleic acid molecules or "allozymes" that are used to modulate HBV gene expression. Such allozymes are active in the presence of HBV-derived nucleic acids, peptides, and/or proteins such as HBV reverse transcriptase and/or a HBV reverse transcriptase primer sequence, thereby allowing the allozyme to selectively cleave a sequence of HBV DNA or RNA. Allozymes of the invention are also designed to be active in the presence of HBV Enhancer I sequences. and/or mutant HBV Enhancer I sequences, thereby allowing the allozyme to selectively cleave a sequence of HBV DNA or RNA. These nucleic acid molecules can be used to treat diseases and disorders associated with HBV infection.

In one embodiment, the invention features a nucleic acid decoy molecule that specifically binds the hepatitis B virus (HBV) reverse transcriptase primer sequence. In.

another embodiment, the invention features a nucleic acid decoy molecule that specifically binds the hepatitis B virus (HBV) reverse transcriptase. In yet another embodiment, the invention features a nucleic acid decoy molecule that specifically binds to the HBV Enhancer. I core sequence.

In one embodiment, the invention features a nucleic acid aptamer that specifically binds the hepatitis B virus (HBV) reverse transcriptase primer. In another embodiment, the invention features a nucleic acid aptamer that specifically binds the hepatitis B virus (HBV) reverse transcriptase. In yet another embodiment, the invention features a nucleic acid aptamer molecule that specifically binds to the HBV Enhancer I core sequence.

In one embodiment, the invention features an allozyme that specifically binds the hepatitis B virus (HBV) reverse transcriptase primer. In another embodiment, the invention features an allozyme that specifically binds the hepatitis B virus (HBV) reverse transcriptase. In yet another embodiment, the invention features an allozyme that specifically binds to the HBV Enhancer I core sequence.

In yet another embodiment, the invention features a nucleic acid molecule, for example a triplex forming nucleic acid molecule or antisense nucleic acid molecule, that binds the hepatitis B virus (HBV) reverse transcriptase primer. In another embodiment, the invention features a triplex forming nucleic acid molecule or antisense nucleic acid molecule that specifically binds the hepatitis B virus (HBV) reverse transcriptase. In yet another embodiment, the invention features a triplex forming nucleic acid molecule or antisense nucleic acid molecule that specifically binds to the HBV Enhancer I core sequence.

In another embodiment, a nucleic acid molecule of the invention binds to Hepatocyte Nuclear Factor 3 (HNF3) and/or Hepatocyte Nuclear Factor 4 (HNF4) binding sequence within the HBV Enhancer I region of HBV genomic DNA, for example the plus strand and/or minus strand DNA of the Enhancer I region, and blocks the binding of HNF3 and/or HNF4 to the Enhancer I region.

In another embodiment, the nucleic acid molecule of the invention comprises a sequence having $(UUCA)_n$ domain, where n is an integer from 1-10. In another embodiment, the nucleic acid molecules of the invention comprise the sequence of SEQ. ID NOs: 11216 - 11342.

In another embodiment, the invention features a composition comprising a nucleic acid molecule of the invention and a pharmaceutically acceptable carrier. In another embodiment, the invention features a mammalian cell, for example a human cell, including a nucleic acid molecule contemplated by the invention.

In one embodiment, the invention features a method for treatment of HBV infection, cirrhosis, liver failure, or hepatocellular carcinoma, comprising administering to a patient a nucleic acid molecule of the invention under conditions suitable for the treatment.

In another embodiment, the invention features a method for the treatment of a patient having a condition associated with HBV infection comprising contacting cells of said patient with a nucleic acid molecule of the invention under conditions suitable for such treatment. In another embodiment, the invention features a method for the treatment of a patient having a condition associated with HBV infection comprising contacting cells of said patient with a nucleic acid molecule of the invention, and further comprising the use of one or more drug therapies, for example type I interferon or 3TC® (lamivudine), under conditions suitable for said treatment. In another embodiment, the other therapy is administered simultaneously with or separately from the nucleic acid molecule.

In another embodiment, the invention features a method for modulating HBV replication in a mammalian cell comprising administering to the cell a nucleic acid molecule of the invention under conditions suitable for the modulation.

In yet another embodiment, the invention features a method of modulating HBV reverse transcriptase activity comprising contacting a nucleic acid molecule of the invention, for example a decoy or aptamer, with HBV reverse transcriptase under conditions suitable for the modulating of the HBV reverse transcriptase activity.

In another embodiment, the invention features a method of modulating HBV transcription comprising contacting a nucleic molecule of the invention with a HBV Enhancer I sequence under conditions suitable for the modulation of HBV transcription.

In one embodiment, a nucleic acid molecule of the invention, for example a decoy or aptamer, is chemically synthesized. In another embodiment, the nucleic acid molecule of the invention comprises at least one nucleic acid sugar modification. In yet another embodiment, the nucleic acid molecule of the invention comprises at least one nucleic acid base modification. In another embodiment, the nucleic acid molecule of the invention comprises at least one nucleic acid backbone modification.

In another embodiment, the nucleic acid molecule of the invention comprises at least one 2'-O-alkyl, 2'-alkyl, 2'-alkoxylalkyl, 2'-alkylthioalkyl, 2'-amino, 2'-O-amino, or 2'-halo modification and/or any combination thereof with or without 2'-deoxy and/or 2'-ribo nucleotides. In yet another embodiment, the nucleic acid molecule of the invention comprises all 2'-O-alkyl nucleotides, for example, all 2'-O-allyl nucleotides.

In one embodiment, the nucleic acid molecule of the invention comprises a 5'-cap, 3'-cap, or 5'-3' cap structure, for example an abasic or inverted abasic moiety.

In another embodiment, the nucleic acid molecule of the invention is a linear nucleic acid molecule. In another embodiment, the nucleic acid molecule of the invention is a linear nucleic acid molecule that can optionally form a hairpin, loop, stem-loop, or other secondary structure. In yet another embodiment, the nucleic acid molecule of the invention is a circular nucleic acid molecule.

In one embodiment, the nucleic acid molecule of the invention is a single stranded oligonucleotide. In another embodiment, the nucleic acid molecule of the invention is a double-stranded oligonucleotide.

In one embodiment, the nucleic acid molecule of the invention comprises an oligonucleotide having between about 3 and about 100 nucleotides. In another embodiment, the nucleic acid molecule of the invention comprises an oligonucleotide having between about 3 and about 24 nucleotides. In another embodiment, the nucleic acid molecule of the invention comprises an oligonucleotide having between about 4 and about 16 nucleotides.

The nucleic acid decoy molecules and/or aptamers that bind to a reverse transcriptase and/or reverse transcriptase primer and therefore inactivate the reverse transcriptase, represent a novel therapeutic approach to treat a variety of pathologic indications, including, viral infection such as HBV infection, hepatitis, hepatocellular carcinoma, tumorigenesis, cirrhosis, liver failure and others.

The nucleic acid molecules that bind to a HBV Enhancer I sequence and therefore inactivate HBV transcription, represent a novel therapeutic approach to treat a variety of pathologic indications, including viral infection such as HBV infection, hepatitis, hepatocellular carcinoma, tumorigenesis, cirrhosis, liver failure and others conditions associated with the level of HBV.

In one embodiment of the present invention, a decoy nucleic acid molecule of the invention is 4 to 50 nucleotides in length, in specific embodiments about 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, or 16 nucleotides in length. In another embodiment, a non-decoy nucleic acid molecule, e.g., an antisense molecule, a triplex DNA, or a ribozyme, is 13 to 100 nucleotides in length, e.g., in specific embodiments 35, 36, 37, or 38 nucleotides in length (e.g., for particular ribozymes or antisense). In particular embodiments, the nucleic acid molecule is 15-100, 17-100, 20-100, 21-100, 23-100, 25-100, 27-100, 30-100, 32-100, 35-100, 40-100, 50-100, 60-100, 70-100, or 80-100 nucleotides in length. Instead of 100 nucleotides being the upper limit on the length ranges specified above, the upper limit of the

length range can be, for example, 30, 40, 50, 60, 70, or 80 nucleotides. Thus, for any of the length ranges, the length range for particular embodiments has lower limit as specified, with an upper limit as specified which is greater than the lower limit. For example, in a particular embodiment, the length range can be 35-50 nucleotides in length. All such ranges are expressly included. Also in particular embodiments, a nucleic acid molecule can have a length which is any of the lengths specified above, for example, 21 nucleotides in length.

Exemplary nucleic acid decoy molecules of the invention are shown in Table XIV. Exemplary synthetic nucleic acid molecules of the invention are shown in Table XV. For example, decoy molecules of the invention are between 4 and 40 nucleotides in length, Exemplary decoys of the invention are 4, 8, 12, or 16 nucleotides in length. In an additional example, enzymatic nucleic acid molecules of the invention are preferably between 15 and 50 nucleotides in length, more preferably between 25 and 40 nucleotides in length, e.g., 34, 36, or 38 nucleotides in length (for example see Jarvis et al., 1996, J. Biol. Chem., 271, 29107-29112). Exemplary DNAzymes of the invention are preferably between 15 and 40 nucleotides in length, more preferably between 25 and 35 nucleotides in length, e.g., 29, 30, 31, or 32 nucleotides in length (see for example Santoro et al., 1998, Biochemistry, 37, 13330-13342; Chartrand et al., 1995, Nucleic Acids Research, 23, 4092-4096). Exemplary antisense molecules of the invention are preferably between 15 and 75 nucleotides in length, more preferably between 20 and 35 nucleotides in length, e.g., 25, 26, 27, or 28 nucleotides in length (see for example Woolf et al., 1992, PNAS., 89, 7305-7309; Milner et al., 1997, Nature Biotechnology, 15, 537-541). Exemplary triplex forming oligonucleotide molecules of the invention are preferably between 10 and 40 nucleotides in length, more preferably between 12 and 25 nucleotides in length, e.g., 18, 19, 20, or 21 nucleotides in length (see for example Maher et al., 1990, Biochemistry, 29, 8820-8826; Strobel and Dervan, 1990, Science, 249, 73-75). Those skilled in the art will recognize that all that is required is that the nucleic acid molecule is of length and conformation sufficient and suitable for the nucleic acid molecule to catalyze a reaction contemplated herein. The length of the nucleic acid molecules of the instant invention are not limiting within the general limits stated.

In one embodiment, the invention provides a method for producing a class of nucleic acid-based gene modulating agents, which exhibit a high degree of specificity for a viral reverse transcriptase such as HBV reverse transcriptase or reverse transcriptase primer such as a HBV reverse transcriptase primer. For example, the nucleic acid molecule is preferably targeted to a highly conserved nucleic acid binding region of the viral reverse transcriptase such that specific treatment of a disease or condition can be provided with either one or several nucleic acid molecules of the invention. Such nucleic acid molecules can be delivered exogenously to specific tissue or cellular targets as required. Alternatively, the

nucleic acid molecules can be expressed from DNA and/or RNA vectors that are delivered to specific cells.

In another embodiment, the invention provides a method for producing a class of nucleic acid—based gene modulating agents which exhibit a high degree of specificity for a viral enhancer regions such as the HBV Enhancer I core sequence. For example, the nucleic acid molecule is preferably targeted to a highly conserved transcription factor-binding region of the viral Enhancer I sequence such that specific treatment of a disease or condition can be provided with either one or several nucleic acid molecules of the invention. Such nucleic acid molecules can be delivered exogenously to specific tissue or cellular targets as required. Alternatively, the nucleic acid molecules can be expressed from DNA and/or RNA vectors that are delivered to specific cells.

In a another embodiment the invention provides a method for producing a class of enzymatic cleaving agents which exhibit a high degree of specificity for the RNA of a desired target. The enzymatic nucleic acid molecule, nuclease activating compound or chimera is preferably targeted to a highly conserved sequence region of a target mRNAs encoding HCV or HBV proteins such that specific treatment of a disease or condition can be provided with either one or several enzymatic nucleic acids. Such nucleic acid molecules can be delivered exogenously to specific cells as required. Alternatively, the enzymatic nucleic acid molecules can be expressed from DNA/RNA vectors that are delivered to specific cells. DNAzymes can be synthesized chemically or expressed endogenously in vivo, by means of a single stranded DNA vector or equivalent thereof.

In another embodiment, the nucleic acid molecule of the invention binds irreversibly to the HBV reverse transcriptase target, for example by covalent attachment of the nucleic molecule to the reverse transcriptase primer sequence. The covalent attachment can be accomplished by introducing chemical modifications into the nucleic acid molecule's (for example, decoy or aptamer) sequence that are capable of forming covalent bonds to the reverse transcriptase primer sequence.

In another embodiment, the nucleic acid molecule of the invention binds irreversibly to the HBV Enhancer I sequence target, for example, by covalent attachment of the nucleic acid molecule to the HBV Enhancer I sequence. The covalent attachment can be accomplished by introducing chemical modifications into the nucleic acid molecule's sequence that are capable of forming covalent bonds to the reverse transcriptase primer sequence.

In another embodiment, the type I interferon contemplated by the invention is interferon alpha, interferon beta, consensus interferon, polyethylene glycol interferon,

polyethylene glycol interferon alpha 2a, polyethylene glycol interferon alpha 2b, polyethylene glycol consensus interferon.

In one embodiment, the invention features a composition comprising type I interferon and a nucleic acid molecule of the inventionand a pharmaceutically acceptable carrier.

In another embodiment, the invention features a method of administering to a cell, for example a mammalian cell or human cell, a nucleic acid molecule of the invention independently or in conjunction with other therapeutic compounds, such as type I interferon or 3TC® (lamivudine), comprising contacting the cell with the nucleic acid molecule under conditions suitable for the administration.

In yet another embodiment, the invention features a method of administering to a cell, for example a mammalian cell or human cell, a nucleic acid molecule of the invention independently or in conjunction with other therapeutic compounds such as enzymatic nucleic acid molecules, antisense molecules, triplex forming oligonucleotides, 2,5-A chimeras, and/or RNAi, comprising contacting the cell with the nucleic acid molecule of the invention under conditions suitable for the administration.

In another embodiment, administration of a nucleic acid molecule of the invention is administered to a cell or patient in the presence of a delivery reagent, for example a lipid, cationic lipid, phospholipid, or liposome.

In one embodiment, the invention features novel nucleic acid-based techniques such as nucleic acid decoy molecules and/or aptamers, used alone or in combination with enzymatic nucleic acid molecules, antisense molecules, and/or RNAi, and methods for use to down regulate or modulate the expression of HBV RNA and/or replication of HBV.

In another embodiment, the invention features the use of one or more of the nucleic acid-based techniques to modulate the expression of the genes encoding HBV viral proteins. Specifically, the invention features the use of nucleic acid-based techniques to specifically modulate the expression of the HBV viral genome.

In another embodiment, the invention features the use of one or more of the nucleic acid-based techniques to modulate the activity, expression, or level of cellular proteins required for HBV replication. For example, the invention features the use of nucleic acid-based techniques to specifically modulate the activity of cellular proteins required for HBV replication.

In another embodiment, the invention features nucleic acid-based modulators (e.g., nucleic acid decoy molecules, aptamers, enzymatic nucleic acid molecules (ribozymes),

antisense nucleic acids, triplex DNA, antisense nucleic acids containing RNA cleaving chemical groups) and methods for their use to down regulate or modulate reverse transcriptase activity and/or the expression of RNA (e.g., HBV) capable of progression and/or maintenance of HBV infection, hepatocellular carcinoma, liver disease and failure.

In another embodiment, the invention features nucleic acid-based techniques (e.g., nucleic acid decoy molecules, aptamers, enzymatic nucleic acid molecules (ribozymes), antisense nucleic acid molecules, triplex DNA, antisense nucleic acids containing RNA cleaving chemical groups) and methods for their use to down regulate or modulate reverse transcriptase activity and/or the expression of HBV RNA.

In another embodiment, the invention features nucleic acid-based modulators (e.g., nucleic acid decoy molecules, aptamers, enzymatic nucleic acid molecules (ribozymes), antisense nucleic acids, triplex DNA, siRNA, dsRNA, antisense nucleic acids containing RNA cleaving chemical groups) and methods for their use to down regulate or modulate Enhancer I mediated transcription activity and/or the expression of DNA (e.g., HBV) capable of progression and/or maintenance of HBV infection, hepatocellular carcinoma, liver disease and failure.

In another embodiment, the invention features nucleic acid-based techniques (e.g., nucleic acid decoy molecules, aptamers, enzymatic nucleic acid molecules, antisense nucleic acid molecules, triplex DNA, siRNA, antisense nucleic acids containing DNA cleaving chemical groups) and methods for their use to down regulate or modulate Enhancer I mediated transcription activity and/or the expression of HBV DNA.

In another embodiment, the invention features a nucleic acid sensor molecule having an enzymatic nucleic acid domain and a sensor domain that interacts with an HBV peptide, protein, or polynucleotide sequence, for example, HBV reverse transcriptase, HBV reverse transcriptase primer, or the Enhancer I element of the HBV pregenomic RNA, wherein such interaction results in modulation of the activity of the enzymatic nucleic acid domain of the nucleic acid sensor molecule. In another embodiment, the invention features HBV-specific nucleic acid sensor molecules or allozymes, and methods for their use to down regulate or modulate the expression of HBV RNA capable of progression and/or maintenance of hepatitis, hepatocellular carcinoma, cirrhosis, and/or liver failure. In yet another embodiment, the enzymatic nucleic acid domain of a nucleic acid sensor molecule of the invention is a Hammerhead, Inozyme, G-cleaver, DNAzyme, Zinzyme, Amberzyme, or Hairpin enzymatic nucleic acid molecule.

In one embodiment, nucleic acid molecules of the invention are used to treat HBV-infected cells or a HBV-infected patient wherein the HBV is resistant or the patient does not

respond to treatment with 3TC® (Lamivudine), either alone or in combination with other therapies under conditions suitable for the treatment.

In another embodiment, nucleic acid molecules of the invention are used to treat HBV-infected cells or a HBV-infected patient, wherein the HBV is resistant or the patient does not respond to treatment with Interferon, for example Infergen®, either alone or in combination with other therapies under conditions suitable for the treatment.

The invention also relates to *in vitro* and *in vivo* systems, including, e.g., mammalian systems for screening inhibitors of HBV. In one embodiment, the invention features a mouse, for example a male or female mouse, implanted with HepG2.2.15 cells, wherein the mouse is susceptible to HBV infection and capable of sustaining HBV DNA expression. One embodiment of the invention provides a mouse implanted with HepG2.2.15 cells, wherein said mouse sustains the propagation of HEPG2.2.15 cells and HBV production.

In another embodiment, a mouse of the invention has been infected with HBV for at least one week to at least eight weeks, including, for example at least 4 weeks.

In yet another embodiment, a mouse of the invention, for example a male or female mouse, is an immunocompromised mouse, for example a nu/nu mouse or a scid/scid mouse.

In one embodiment, the invention features a method of producing a mouse of the invention, comprising injecting, for example by subcutaneous injection, HepG2.2.15 (Sells, et al., 1987, Proc Natl Acad Sci U S A., 84, 1005-1009) cells into the mouse under conditions suitable for the propagation of HepG2.2.15 cells in said mouse. HepG2.2.15 cells can be suspended in, for example, Delbecco's PBS solution including calcium and magnesium. In another embodiment, HepG2.2.15 cells are selected for antibiotic resistance and are then introduced into the mouse under conditions suitable for the propagation of HepG2.2.15 cells in said mouse. A non-limiting example of antibiotic resistant HepG2.2.15 cells include G418 antibiotic resistant HepG2.2.15 cells.

In another embodiment, the invention features a method of screening a compound for therapeutic activity against HBV, comprising administering the compound to a mouse of the invention and monitoring the the levels of HBV produced (e.g. by assaying for HBV DNA levels) in the mouse.

In one embodiment, a therapeutic compound or therapy contemplated by the invention is a lipid, steroid, peptide, protein, antibody, monoclonal antibody, humanized monoclonal antibody, small molecule, and/or isomers and analogs thereof, and/or a cell.

In one embodiment, a therapeutic compound or therapy contemplated by the invention is a nucleic acid molecule, for example a nucleic acid molecule, such as an enzymatic nucleic acid molecule, antisense nucleic acid molecule, allozyme, peptide nucleic acid, decoy, triplex oligonucleotide, dsRNA, ssRNA, RNAi, siRNA, aptamer, or 2,5-A chimera used alone or in combination with another therapy, for example antiviral therapy. Antiviral therapy can be, for example, treatment with 3TC® (Lamivudine) or interferon. Interferon can include, for example, consensus interferon or type I interferon. Type I interferon can include interferon alpha, interferon beta, consensus interferon, polyethylene glycol interferon, polyethylene glycol interferon alpha 2a, polyethylene glycol interferon alpha 2b, or polyethylene glycol consensus interferon.

In one embodiment, the invention features a non-human mammal implanted with HepG2.2.15 cells, wherein the non-human mammal is susceptible to HBV infection and capable of sustaining HBV DNA expression in the implanted HepG2.2.15 cells.

In another embodiment, a non-human mammal of the invention, for example a male or female non-human mammal, has been infected with HBV for at least one week to at least eight weeks, including for example at least four weeks.

In yet another embodiment, a non-human mammal of the invention is an immunocompromised mammal, for example a nu/nu mammal or a scid/scid mammal.

In one embodiment, the invention features a method of producing a non-human mammal comprising HepG2.2.15 cells comprising injecting, for example by subcutaneous injection, HepG2.2.15 cells into the non-human mammal under conditions suitable for the propagation of HepG2.2.15 cells in said non-human mammal.

In another embodiment, the invention features a method of screening a compound for therapeutic activity against HBV comprising administering the compound to a non-human mammal of the invention and monitoring the levels of HBV produced (e.g. by assaying for HBV DNA levels) in the non-human mammals.

In one embodiment, a therapeutic compound or therapy contemplated by the invention is a nucleic acid molecule, for example an enzymatic nucleic acid molecule, allozyme, antisense nucleic acid molecule, decoy, triplex oligonucleotide, dsRNA, ssRNA, RNAi, siRNA, or 2,5-A chimera used alone or in combination with another therapy, for example antiviral therapy.

Methods and chimeric immunocompromised heterologous non-human mammalian hosts, particularly mouse hosts, are provided for the expression of hepatitis B virus ("HBV").

In one embodiment, the chimeric hosts have transplanted viable, HepG2.2.15 cells in an immunocompromised host.

The non-human mammals contemplated by the invention are immunocompromised in normally inheriting the desired immune incapacity, or the desired immune incapacity can be created. For example, hosts with severe combined immunodeficiency, known as scid/scid hosts, are available. Rodentia, particularly mice, and equine, particularly horses, are presently available as scid/scid hosts, for example scid/scid mice and scid/scid rats. The scid/scid hosts lack functioning lymphocyte types, particularly B-cells and some T-cell types. In the scid/scid mouse hosts, the genetic defect appears to be a non-functioning recombinase, as the germline DNA is not rearranged to produce functioning surface immunoglobulin and T-cell receptors.

Any immunodeficient non-human mammals, e.g. mouse, can be used to generate the animal models described herein. The term "immunodeficient," as used herein, refers to a genetic alteration that impairs the animal's ability to mount an effective immune response. In this regard, an "effective immune response" is one which is capable of destroying invading pathogens such as (but not limited to) viruses, bacteria, parasites, malignant cells, and/or a xenogeneic or allogeneic transplant. In one embodiment, the immunodeficient mouse is a severe immunodeficient (SCID) mouse, which lacks recombinase activity that is necessary for the generation of immunoglobulin and functional T cell antigen receptors, and thus does not produce functional B and T lymphocytes. In another embodiment, the immunodeficient mouse is a nude mouse, which contains a genetic defect that results in the absence of a functional thymus, leading to T-cell and B-cell deficiencies. However, mice containing other immunodeficiencies (such as rag-1 or rag-2 knockouts, as described in Chen et al., 1994, Curr. Opin. Immunol., 6, 313-319 and Guidas et al., 1995, J. Exp. Med., 181, 1187-1195, or beige-nude mice, which also lack natural killer cells, as described in Kollmann et al., 1993, J. Exp. Med., 177, 821-832) can also be employed.

The introduction of HepG2.2.15 cells occurs with a host at an age less than about 25% of its normal lifespan, usually to 20% of the normal lifespan with mice, and the age will generally be of an age of about 3 to 10 weeks, more usually from about 4 to 8 weeks. The mice can be of either sex, can be neutered, and can be otherwise normal, except for the immunocompromised state, or they can have one or more mutations, which can be naturally occurring or as a result of mutagenesis.

In another embodiment, the mouse model described herein is used to evaluate the effectiveness of thetherapeutic compounds and methods. The terms "therapeutic compounds", "therapeutic methods" and "therapy" as used herein, encompass exogenous factors, such as dietary or environmental conditions, as well as pharmaceutical compositions

"drugs" and vaccines. In one embodiment, the therapeutic method is an immunotherapy, which can include the treatment of the HBV bearing animal with populations of HBVreactive immune cells. The therapeutic method can also, or alternatively, be a gene therapy (i.e., a therapy that involves treatment of the HBV-bearing mouse with a cell population that has been manipulated to express one or more genes, the products of which can possess antiviral activity), see for example The Development of Human Gene Therapy, Theodore Friedmann, Ed. Cold Spring Harbor Laboratory Press, Cold Spring Harbor, NY, 1999. Therapeutic compounds of the invention can comprise a drug or composition with pharmaceutical activity that can be used to treat illness or disease. A therapeutic method can comprise the use of a plurality of compounds in a mixture or a distinct entity. Examples of such compounds include nucleosides, nucleic acids, nucleic acid chimeras, RNA and DNA oligonucleotides, peptide nucleic acids, enzymatic nucleic acid molecules, antisense nucleic acid molecules, decoys, triplex oligonucleotides, ssDNA, dsRNA, ssRNA, siRNA, 2,5-A chimeras, lipids, steroids, peptides, proteins, antibodies, monoclonal antibodies (see for example Hall, 1995, Science, 270, 915-916), small molecules, and/or isomers and analogs thereof.

The methods of this invention can be used to treat human hepatitis B virus infections, which include productive virus infection, latent or persistent virus infection, and HBV-induced hepatocyte transformation. The utility can be extended to other species of HBV that infect non-human animals where such infections are of veterinary importance.

Preferred binding sites of the nucleic acid molecules of the invention include, but are not limited, to the primer binding site on HBV reverse transcriptase, the primer binding sequences of the HBV RNA, and/or the HBV Enhancer I region of HBV DNA.

This invention further relates to nucleic acid molecules that target RNA species of hepatitis C virus (HCV) and/or encoded by the HCV. In one embodiment, applicant describes enzymatic nucleic acid molecules that specifically cleave HCV RNA and the selection and function thereof. The invention further relates to compounds and chimeric molecules comprising nuclease activating activity. The invention also relates to compositions and methods for the cleavage of RNA using these nuclease activating compounds and chimeras. Nucleic acid molecules, nuclease activating compounds and chimeras, and compostions and methods of the invention can be used to treat diseases associated with HCV infection.

Due to the high sequence variability of the HCV genome, selection of nucleic acid molecules and nuclease activating compounds and chimeras for broad therapeutic applications preferably involve the conserved regions of the HCV genome. Thus, in one embodiment the present invention describes nucleic acid molecules that cleave the conserved

regions of the HCV genome. The invention further describes compounds and chimeric molecules that activate cellular nucleases that cleave HCV RNA, including concerved regions of the HCV genome. Examples of conserved regions of the HCV genome include but are not limited to the 5'-Non Coding Region (NCR), the 5'-end of the core protein coding region, and the 3'- NCR. HCV genomic RNA contains an internal ribosome entry site (IRES) in the 5'-NCR which mediates translation independently of a 5'-cap structure (Wang et al., 1993, J. Virol., 67, 3338-44). The full-length sequence of the HCV RNA genome is heterologous among clinically isolated subtypes, of which there are at least 15 (Simmonds, 1995, Hepatology, 21, 570-583), however, the 5'-NCR sequence of HCV is highly conserved across all known subtypes, most likely to preserve the shared IRES mechanism (Okamoto et al., 1991, J. General Virol., 72, 2697-2704). In general, enzymatic nucleic acid molecules and nuclease activating compounds, and chimeras that cleave sites located in the 5' end of the HCV genome are expected to block translation while nucleic acid molecules and nuclease activating compounds, and chimeras that cleave sites located in the 3' end of the genome are expected to block RNA replication. Therefore, one nucleic acid molecule, compound, or chimera can be designed to cleave all the different isolates of HCV. Enzymatic nucleic acid molecules and nuclease activating compounds, and chimeras designed against conserved regions of various HCV isolates enable efficient inhibition of HCV replication in diverse patient populations and ensure the effectiveness of the nucleic acid molecules and nuclease activating compounds, and chimeras against HCV quasi species which evolve due to mutations in the non-conserved regions of the HCV genome.

In one embodiment, the invention features an enzymatic nucleic acid molecule, preferably in the hammerhead, NCH (Inozyme), G-cleaver, amberzyme, zinzyme and/or DNAzyme motif, and the use thereof to down-regulate or inhibit the expression of HCV RNA.

In another embodiment, the invention features an enzymatic nucleic acid molecule, preferably in the hammerhead, Inozyme, G-cleaver, amberzyme, zinzyme and/or DNAzyme motif, and the use thereof to down-regulate or inhibit the expression of HCV minus strand RNA.

In yet another embodiment, the invention features a nuclease activating compound and/or a chimera and the use thereof to down-regulate or inhibit the expression of HCV RNA.

In another embodiment, the invention features the use of a nuclease activating compound and/or a chimera to inhibit the expression of HCVminus strand RNA.

In one embodiment, the invention features a compound having formula I:

wherein X_1 is an integer selected from the group consisting of 1, 2, and 3; X_2 is an integer greater than or equal to 1; R_6 is independantly selected from the group including H, OH, NH₂, O NH₂, alkyl, S-alkyl, O-alkyl, O-alkyl-S-alkyl, O-alkoxyalkyl, allyl, O-allyl, and fluoro; each R_1 and R_2 are independantly selected from the group consisting of O and S; each R_3 and R_4 are independantly selected from the group consisting of O, N, and S; and R_5 is selected from the group consisting of alkyl, alkylamine, an oligonucleotide having any of SEQ ID NOS. 11343-16182, an oligonucleotide having a sequence complementary to a sequence selected from the group including SEQ ID NOS. 2594-7433, and abasic moiety.

In another embodiment, the abasic moiety of the instant invention is selected from the group consisting of:

$$R_7$$
 R_3 R_7 and R_7 R_7 R_7 R_7

wherein R₃ is selected from the group consisting of O, N, and S, and R₇ is independently selected from the group consisting of H, OH, NH2, O-NH2, alkyl, S-alkyl, O-alkyl, O-alkyl-S-alkyl, O-alkoxyalkyl, allyl, O-allyl, fluoro, oligonucleotide, alkyl, alkylamine and abasic moiety.

In another embodiment, the oligonucleotide R_5 of Formula I having a sequence complementary to a sequence selected from the group consisting of SEQ ID NOS. 2594-7433 is an enzymatic nucleic acid molecule.

In yet another embodiment, the oligonucleotide R₅ of Formula I having a sequence complementary to a sequence selected from the group consisting of SEQ ID NOS. 2594-7433 is an antisense nucleic acid molecule.

In another embodiment, the oligonucleotide R₅ of Formula I having a sequence complementary to a sequence selected from the group consisting of SEQ ID NOS. 2594-7433 is an enzymatic nucleic acid molecule selected from the group consisting of Hammerhead, Inozyme, G-cleaver, DNAzyme, Amberzyme, and Zinzyme motifs.

In another embodiment, the Inozyme enzymatic nucleic acid molecule of the instant invention comprises a stem II region of length greater than or equal to 2 base pairs.

In one embodiment, the oligonucleotide R_5 of Formula I having a sequence complementary to a sequence selected from the group consisting of SEQ ID NOS. 2594-7433 is an enzymatic nucleic acid comprising between 12 and 100 bases complementary to an RNA derived from HCV.

In another embodiment, the oligonucleotide R_5 of Formula I having a sequence complementary to a sequence selected from the group consisting of SEQ ID NOS. 2594-7433 is an enzymatic nucleic acid comprising between 14 and 24 bases complementary to said RNA derived from HCV.

In one embodiment, the oligonucleotide R_5 of Formula I having a sequence complementary to a sequence selected from the group consisting of SEQ ID NOS. 2594-7433 is an antisense nucleic acid comprising between 12 and 100 bases complementary to an RNA derived from HCV.

In another embodiment, the oligonucleotide R₅ of Formula I having a sequence complementary to a sequence selected from the group consisting of SEQ ID NOS. 2594-7433 is an antisense nucleic acid comprising between 14 and 24 bases complementary to said RNA derived from HCV.

In another embodiment, the invention features a composition comprising a compound of Formula I, in a pharmaceutically acceptable carrier.

In yet another embodiment, the invention features a mammalian cell comprising a compound of Formula I. For example, the mammalian cell comprising a compound of Formula I can be a human cell.

In one embodiment, the invention features a method for the treatment of cirrhosis, liver failure, hepatocellular carcinoma, or a condition associated with HCV infection comprising

the step of administering to a patient a compound of Formula I under conditions suitable for said treatment.

In another embodiment, the invention features a method of treatment of a patient having a condition associated with HCV infection comprising contacting cells of said patient with a compound having Formula I, and further comprising the use of one or more drug therapies under conditions suitable for said treatment. For example, the other therapies of the instant invention can be selected from the group consisting of type I interferon, interferon alpha, interferon beta, consensus interferon, polyethylene glycol interferon, polyethylene glycol interferon alpha 2a, polyethylene glycol interferon alpha 2b, polyethylene glycol consensus interferon, treatment with an enzymatic nucleic acid molecule, and treatment with an antisense molecule.

In another embodiment, the other therapies of the instant invention, for example type I interferon, interferon alpha, interferon beta, consensus interferon, polyethylene glycol interferon alpha 2a, polyethylene glycol interferon alpha 2b, polyethylene glycol consensus interferon, treatment with an enzymatic nucleic acid molecule, and treatment with an antisense nucleic acid molecule, and the compound having Formula I are administered separately in separate pharmaceutically acceptable carriers.

In yet another embodiment, the other therapies of the instant invention, for example type I interferon, interferon alpha, interferon beta, consensus interferon, polyethylene glycol interferon alpha 2a, polyethylene glycol interferon alpha 2b, polyethylene glycol consensus interferon, treatment with an enzymatic nucleic acid molecule, and treatment with an antisense nucleic acid molecule, and the compound having Formula I are administered simultaneously in a pharmaceutically acceptable carrier. The invention features a composition comprising a compound of Formula I and one or more of the above-listed compounds in a pharmaceutically acceptable carrier.

In yet another embodiment, the invention features a method for inhibiting HCV replication in a mammalian cell comprising the step of administering to said cell a compound having Formula I under conditions suitable for said inhibition.

In another embodiment, the invention features a method of cleaving a separate RNA molecule (i.e., HCV RNA or RNA necessary for HCV replication) comprising contacting a compound having Formula I with the separate RNA molecule under conditions suitable for the cleavage of the separate RNA molecule. In one example, the method of cleaving a separate RNA molecule is carried out in the presence of a divalent cation, for example Mg2+.

In yet another embodiment, the method of cleaving a separate RNA molecule of the invention is carried out in the presence of a protein nuclease, for example RNAse L.

In one embodiment, a compound having Formula I is chemically synthesized. In one embodiment, a compound having Formula I comprises at least one 2'-sugar modification, at least one nucleic acid base modification, and/or at least one phosphate modification.

The nucleic acid-based modulators of the invention are added directly, or can be complexed with cationic lipids, packaged within liposomes, or otherwise delivered to target cells or tissues. The nucleic acid or nucleic acid complexes can be locally administered to relevant tissues ex vivo, or in vivo through injection, infusion pump or stent, with or without their incorporation in biopolymers. In particular embodiments, the nucleic acid molecules of the invention comprise sequences shown in Tables IV-XI, XIV-XV and XVIII-XXIII. Examples of such nucleic acid molecules consist essentially of sequences defined in the tables.

The nucleic acid-based inhibitors, nuclease activating compounds and chimeras of the invention are added directly, or can be complexed with cationic lipids, packaged within liposomes, or otherwise delivered to target cells or tissues. The nucleic acid or nucleic acid complexes, and nuclease activating compounds or chimeras can be locally administered to relevant tissues ex vivo, or in vivo through injection or infusion pump, with or without their incorporation in biopolymers. In preferred embodiments, the enzymatic nucleic acid inhibitors, and nuclease activating compounds or chimeras comprise sequences, which are complementary to the substrate sequences in Tables XVIII, XIX, XX and XXIII. Examples of such enzymatic nucleic acid molecules also are shown in Tables XVIII, XIX, XX, XXI and XXIII. Examples of such enzymatic nucleic acid molecules consist essentially of sequences defined in these tables. In additional embodiments, the enzymatic nucleic acid inhibitors of the invention that comprise sequences which are complementary to the substrate sequences in Tables XVIII, XIX, XX and XXIII are covalently attached to nuclease activating compound or chimeras of the invention, for example a compound having Formula I.

In yet another embodiment, the invention features antisense nucleic acid molecules and 2-5A chimera including sequences complementary to the substrate sequences shown in Tables XVIII, XIX, XX and XXIII. Such nucleic acid molecules can include sequences as shown for the binding arms of the enzymatic nucleic acid molecules in Tables XVIII, XIX, XX, XXII and XXIII. Similarly, triplex molecules can be provided targeted to the corresponding DNA target regions, and containing the DNA equivalent of a target sequence or a sequence complementary to the specified target (substrate) sequence. Typically, antisense molecules are complementary to a target sequence along a single contiguous

sequence of the antisense molecule. However, in certain embodiments, an antisense molecule can bind to substrate such that the substrate molecule forms a loop, and/or an antisense molecule can bind such that the antisense molecule forms a loop. Thus, the antisense molecule can be complementary to two (or even more) non-contiguous substrate sequences or two (or even more) non-contiguous sequence portions of an antisense molecule can be complementary to a target sequence or both.

In one embodiment, the invention features nucleic acid molecules and nuclease activating compounds or chimeras that inhibit gene expression and/or viral replication. These chemically or enzymatically synthesized nucleic acid molecules can contain substrate binding domains that bind to accessible regions of their target mRNAs. The nucleic acid molecules also contain domains that catalyze the cleavage of RNA. The enzymatic nucleic acid molecules are preferably molecules of the hammerhead, Inozyme, DNAzyme, Zinzyme, Amberzyme, and/or G-cleaver motifs. Upon binding, the enzymatic nucleic acid molecules cleave the target mRNAs, preventing translation and protein accumulation. In the absence of the expression of the target gene, HCV gene expression and/or replication is inhibited.

In another aspect, the invention provides mammalian cells containing one or more nucleic acid molecules and/or expression vectors of this invention. The one or more nucleic acid molecules can independently be targeted to the same or different sites.

In one embodiment, nucleic acid decoys, aptamers, siRNA, enzymatic nucleic acids or antisense molecules that interact with target protein and/or RNA molecules and modulate HBV (specifically HBV reverse transcriptase, or transcription of HBV genomic DNA) activity are expressed from transcription units inserted into DNA or RNA vectors. The recombinant vectors are preferably DNA plasmids or viral vectors. Decoys, aptamers, enzymatic nucleic acid or antisense expressing viral vectors can be constructed based on, but not limited to, adeno-associated virus, retrovirus, adenovirus, or alphavirus. Preferably, the recombinant vectors capable of expressing the decoys, aptamers, enzymatic nucleic acids or antisense are delivered as described above, and persist in target cells. Alternatively, viral vectors can be used that provide for transient expression of decoys, aptamers, siRNA, enzymatic nucleic acids or antisense. Such vectors can be repeatedly administered as necessary. Once expressed, the decoys, aptamers, enzymatic nucleic acids or antisense bind to the target protein and/or RNA and modulate its function or expression. Delivery of decoy, aptamer, siRNA, enzymatic nucleic acid or antisense expressing vectors can be systemic, such as by intravenous or intramuscular administration, by administration to target cells explanted from the patient followed by reintroduction into the patient, or by any other means that would allow for introduction into the desired target cell. DNA based nucleic acid

molecules of the invention can be expressed via the use of a single stranded DNA intracellular expression vector.

In one embodiment, nucleic acid molecules and nuclease activating compounds or chimeras are added directly, or can be complexed with cationic lipids, packaged within liposomes, or otherwise delivered to target cells. The nucleic acid or nucleic acid complexes can be locally administered to relevant tissues ex vivo, or in vivo through injection, infusion pump or stent, with or without their incorporation in biopolymers. In another preferred embodiment, the nucleic acid molecule, nuclease activating compound or chimera is administered to the site of HBV or HCV activity (e.g., hepatocytes) in an appropriate liposomal vehicle.

In another embodiment, nucleic acid molecules that cleave target molecules and inhibit HCV activity are expressed from transcription units inserted into DNA or RNA vectors. The recombinant vectors are preferably DNA plasmids or viral vectors. Nucleic acid molecule expressing viral vectors can be constructed based on, but not limited to, adeno-associated virus, retrovirus, adenovirus, or alphavirus. Preferably, the recombinant vectors capable of expressing the nucleic acid molecules are delivered as described above, and persist in target cells. Alternatively, viral vectors can be used that provide for transient expression of nucleic acid molecules. Such vectors can be repeatedly administered as necessary. Once expressed, the nucleic acid molecules cleave the target mRNA. Delivery of enzymatic nucleic acid molecule expressing vectors can be systemic, such as by intravenous or intramuscular administration, by administration to target cells ex-planted from the patient followed by reintroduction into the patient, or by any other means that would allow for introduction into the desired target cell (for a review see Couture and Stinchcomb, 1996, TIG., 12, 510). In another aspect of the invention, nucleic acid molecules that cleave target molecules and inhibit viral replication are expressed from transcription units inserted into DNA, RNA, or viral vectors. Preferably, the recombinant vectors capable of expressing the nucleic acid molecules are locally delivered as described above, and transiently persist in smooth muscle cells. However, other mammalian cell vectors that direct the expression of RNA can be used for this purpose.

The nucleic acid molecules of the instant invention, individually, or in combination or in conjunction with other drugs, and/or therapies can be used to treat diseases or conditions discussed herein. For example, to treat a disease or condition associated with the levels of HBV or HCV, the nucleic acid molecules can be administered to a patient or can be administered to other appropriate cells evident to those skilled in the art, individually or in combination with one or more drugs under conditions suitable for the treatment.

In a further embodiment, the described molecules, such as decoys, aptamers, antisense, enzymatic nucleic acids, or nuclease activating compounds and chimeras can be used in combination with other known treatments to treat conditions or diseases discussed above. For example, the described molecules could be used in combination with one or more known therapeutic agents to treat HBV infection, HCV infection, hepatitis, hepatocellular carcinoma, cancer, cirrhosis, and liver failure. Such therapeutic agents can include, but are not limited to, nucleoside analogs selected from the group comprising Lamivudine (3TC®), L-FMAU, and/or adefovir dipivoxil (for a review of applicable nucleoside analogs, see Colacino and Staschke, 1998, *Progress in Drug Research*, 50, 259-322). Immunomodulators selected from the group comprising Type 1 Interferon, therapeutic vaccines, steriods, and 2'-5' oligoadenylates (for a review of 2'-5' Oligoadenylates, see Charubala and Pfleiderer, 1994, *Progress in Molecular and Subcellular Biology*, 14, 113-138).

Nucleic acid molecules, nuclease activating compounds and chimeras of the invention, individually, or in combination or in conjunction with other drugs, can be used to treat diseases or conditions discussed above. For example, to treat a disease or condition associated with HBV or HCV levels, the patient can be treated, or other appropriate cells can be treated, as is evident to those skilled in the art.

In a further embodiment, the described molecules can be used in combination with other known treatments to treat conditions or diseases discussed above. For example, the described molecules can be used in combination with one or more known therapeutic agents to treat liver failure, hepatocellular carcinoma, cirrhosis, and/or other disease states associated with HBV or HCV infection. Additional known therapeutic agents are those comprising antivirals, interferons, and/or antisense compounds.

The term "inhibit" or "down-regulate" as used herein refers to the expression of the gene, or level of RNAs or equivalent RNAs encoding one or more protein subunits or components, or activity of one or more protein subunits or components, such as HBV protein or proteins, is reduced below that observed in the absence of the therapies of the invention. In one embodiment, inhibition or down-regulation with enzymatic nucleic acid molecule preferably is below that level observed in the presence of an enzymatically inactive or attenuated molecule that is able to bind to the same site on the target RNA, but is unable to cleave that RNA. In another embodiment, inhibition or down-regulation with antisense oligonucleotides is preferably below that level observed in the presence of, for example, an oligonucleotide with scrambled sequence or with mismatches. In another embodiment, inhibition or down-regulation of HBV with the nucleic acid molecule of the instant invention is greater in the presence of the nucleic acid molecule than in its absence.

The term "up-regulate" as used herein refers to the expression of the gene, or level of RNAs or equivalent RNAs encoding one or more protein subunits or components, or activity of one or more protein subunits or components, such as HBV or HCV protein or proteins, is greater than that observed in the absence of the therapies of the invention. For example, the expression of a gene, such as HBV or HCV genes, can be increased in order to treat, prevent, ameliorate, or modulate a pathological condition caused or exacerbated by an absence or low level of gene expression.

The term "modulate" as used herein refers to the expression of the gene, or level of RNAs or equivalent RNAs encoding one or more protein subunits or components, or activity of one or more proteins is up-regulated or down-regulated, such that the expression, level, or activity is greater than or less than that observed in the absence of the therapies of the invention.

The term "decoy" as used herein refers to a nucleic acid molecule, for example RNA or DNA, or aptamer that is designed to preferentially bind to a predetermined ligand. Such binding can result in the inhibition or activation of a target molecule. A decoy or aptamer can compete with a naturally occurring binding target for the binding of a specific ligand. For example, it has been shown that over-expression of HIV trans-activation response (TAR) RNA can act as a "decoy" and efficiently binds HIV tat protein, thereby preventing it from binding to TAR sequences encoded in the HIV RNA (Sullenger et al., 1990, Cell, 63, 601-608). This is but a specific example and those in the art will recognize that other embodiments can be readily generated using techniques generally known in the art, see for example Gold et al., 1995, Annu. Rev. Biochem., 64, 763; Brody and Gold, 2000, J. Biotechnol., 74, 5; Sun, 2000, Curr. Opin. Mol. Ther., 2, 100; Kusser, 2000, J. Biotechnol., 74, 27; Hermann and Patel, 2000, Science, 287, 820; and Jayasena, 1999, Clinical Chemistry, 45, 1628. Similarly, a decoy can be designed to bind to HBV or HCV proteins and block the binding of HBV or HCV DNA or RNA or a decoy can be designed to bind to HBV or HCV proteins.

By "aptamer" or "nucleic acid aptamer" as used herein is meant a nucleic acid molecule that binds specifically to a target molecule wherein the nucleic acid molecule has sequence that is distinct from sequence recognized by the target molecule in its natural setting. Alternately, an aptamer can be a nucleic acid molecule that binds to a target molecule where the target molecule does not naturally bind to a nucleic acid. The target molecule can be any molecule of interest. For example, the aptamer can be used to bind to a ligand-binding domain of a protein, thereby preventing interaction of the naturally occurring ligand with the protein. This is a non-limiting example and those in the art will recognize that other embodiments can be readily generated using techniques generally known in the art, see for

example Gold et al., 1995, Annu. Rev. Biochem., 64, 763; Brody and Gold, 2000, J. Biotechnol., 74, 5; Sun, 2000, Curr. Opin. Mol. Ther., 2, 100; Kusser, 2000, J. Biotechnol., 74, 27; Hermann and Patel, 2000, Science, 287, 820; and Jayasena, 1999, Clinical Chemistry, 45, 1628.

By "enzymatic nucleic acid molecule" is meant a nucleic acid molecule that has complementarity in a substrate binding region to a specified gene target, and also has an enzymatic activity which is active to specifically cleave a target RNA molecule. That is, the enzymatic nucleic acid molecule is able to intermolecularly cleave a RNA molecule and thereby inactivate a target RNA molecule. These complementary regions allow sufficient hybridization of the enzymatic nucleic acid molecule to a target RNA molecule and thus permit cleavage. One hundred percent complementarity is preferred, but complementarity as low as 50-75% may also be useful in this invention (see for example Werner and Uhlenbeck, 1995, Nucleic Acids Research, 23, 2092-2096; Hammann et al., 1999, Antisense and Nucleic Acid Drug Dev., 9, 25-31). The nucleic acids can be modified at the base, sugar, and/or phosphate groups. The term enzymatic nucleic acid is used interchangeably with phrases such as ribozymes, catalytic RNA, enzymatic RNA, catalytic DNA, aptazyme or aptamer-binding ribozyme, regulatable ribozyme, catalytic oligonucleotides, nucleozyme, DNAzyme, RNA enzyme, endoribonuclease, endonuclease, minizyme, leadzyme, oligozyme or DNA enzyme. All of these terminologies describe nucleic acid molecules with enzymatic activity. The specific enzymatic nucleic acid molecules described in the instant application are not limiting in the invention and those skilled in the art will recognize that all that is important in an enzymatic nucleic acid molecule of this invention is that it have a specific substrate binding site which is complementary to one or more of the target nucleic acid regions, and that it have nucleotide sequences within or surrounding that substrate binding site which impart a nucleic acid cleaving activity to the molecule (Cech et al., U.S. Patent No. 4,987,071; Cech et al., 1988, JAMA 260:20 3030-4).

By "nucleic acid molecule" as used herein is meant a molecule comprising nucleotides. The nucleic acid can be single, double, or multiple stranded and can comprise modified or unmodified nucleotides or non-nucleotides or various mixtures and combinations thereof.

By "enzymatic portion" or "catalytic domain" is meant that portion/region of the enzymatic nucleic acid molecule essential for cleavage of a nucleic acid substrate (for example see Figures 1-5).

By "substrate binding arm" or "substrate binding domain" is meant that portion/region of a ribozyme which is complementary to (i.e., able to base-pair with) a portion of its substrate. Generally, such complementarity is 100%, but can be less if desired. For example, as few as 10 bases out of 14 may be base-paired (see for example Werner and Uhlenbeck,

1995, Nucleic Acids Research, 23, 2092-2096; Hammann et al., 1999, Antisense and Nucleic Acid Drug Dev., 9, 25-31). Such arms are shown generally in Figures 1-5. That is, these arms contain sequences within a ribozyme which are intended to bring ribozyme and target RNA together through complementary base-pairing interactions. The ribozyme of the invention can have binding arms that are contiguous or non-contiguous and may be of varying lengths. The length of the binding arm(s) are preferably greater than or equal to four nucleotides and of sufficient length to stably interact with the target RNA; specifically 12-100 nucleotides; more specifically 14-24 nucleotides long (see for example Werner and Uhlenbeck, supra; Hamman et al., supra; Hampel et al., EP0360257; Berzal-Herrance et al., 1993, EMBO J., 12, 2567-73). If two binding arms are chosen, the design is such that the length of the binding arms are symmetrical (i.e., each of the binding arms is of the same length; e.g., five and five nucleotides, six and six nucleotides or seven and seven nucleotides long) or asymmetrical (i.e., the binding arms are of different length; e.g., six and three nucleotides; three and six nucleotides long; four and five nucleotides long; four and six nucleotides long; four and seven nucleotides long; four and the like).

By "nuclease activating compound" is meant a compound, for example a compound having Formula I, that activates the cleavage of an RNA by a nuclease. The nuclease can comprise RNAse L. By "nuclease activating chimera" or "chimera" is meant a nuclease activating compound, for example a compound having Formula I, that is attached to a nulceic acid molecule, for example a nucleic acid molecule that binds preferentially to a target RNA. These chimeric nucleic acid molecules can comprise a nuclease activating compound and an antisense nucleic acid molecule, for example a 2',5'-oligoadenylate antisense chimera, or an enzymatic nucleic acid molecule, for example a 2',5'-oligoadenylate enzymatic nucleic acid chimera.

By "Inozyme" or "NCH" motif or configuration is meant, an enzymatic nucleic acid molecule comprising a motif as is generally described as NCH Rz in Ludwig et al., International PCT Publication No. WO 98/58058 and US Patent Application Serial No. 08/878,640. Inozymes possess endonuclease activity to cleave RNA substrates having a cleavage triplet NCH/, where N is a nucleotide, C is cytidine and H is adenosine, uridine or cytidine, and / represents the cleavage site. Inozymes can also possess endonuclease activity to cleave RNA substrates having a cleavage triplet NCN/, where N is a nucleotide, C is cytidine, and / represents the cleavage site.

By "G-cleaver" motif or configuration is meant, an enzymatic nucleic acid molecule comprising a motif as is generally described in Eckstein et al., US 6,127,173 and in Kore et al., 1998, Nucleic Acids Research 26, 4116-4120. G-cleavers possess endonuclease activity

to cleave RNA substrates having a cleavage triplet NYN/, where N is a nucleotide, Y is uridine or cytidine and / represents the cleavage site. G-cleavers can be chemically modified.

By "zinzyme" motif or configuration is meant, an enzymatic nucleic acid molecule comprising a motif as is generally described in Beigelman et al., International PCT publication No. WO 99/55857 and US Patent Application Serial No. 09/918,728. Zinzymes possess endonuclease activity to cleave RNA substrates having a cleavage triplet including but not limited to, YG/Y, where Y is uridine or cytidine, and G is guanosine and / represents the cleavage site. Zinzymes can be chemically modified to increase nuclease stability through various substitutions, including substituting 2'-O-methyl guanosine nucleotides for guanosine nucleotides. In addition, differing nucleotide and/or non-nucleotide linkers can be used to substitute the 5'-gaaa-2' loop of the motif. Zinzymes represent a non-limiting example of an enzymatic nucleic acid molecule that does not require a ribonucleotide (2'-OH) group within its own nucleic acid sequence for activity.

By "amberzyme" motif or configuration is meant, an enzymatic nucleic acid molecule comprising a motif as is generally described in Beigelman *et al.*, International PCT publication No. WO 99/55857 and US Patent Application Serial No. 09/476,387. Amberzymes possess endonuclease activity to cleave RNA substrates having a cleavage triplet NG/N, where N is a nucleotide, G is guanosine, and / represents the cleavage site. Amberzymes can be chemically modified to increase nuclease stability. In addition, differing nucleoside and/or non-nucleoside linkers can be used to substitute the 5'-gaaa-3' loops of the motif. Amberzymes represent a non-limiting example of an enzymatic nucleic acid molecule that does not require a ribonucleotide (2'-OH) group within its own nucleic acid sequence for activity.

By 'DNAzyme' is meant, an enzymatic nucleic acid molecule that does not require the presence of a 2'-OH group within its own nucleic acid sequence for activity. In particular embodiments, the enzymatic nucleic acid molecule can have an attached linker or linkers or other attached or associated groups, moieties, or chains containing one or more nucleotides with 2'-OH groups. DNAzymes can be synthesized chemically or expressed endogenously in vivo, by means of a single stranded DNA vector or equivalent thereof. Non-limiting examples of DNAzymes are generally reviewed in Usman et al., US patent No., 6,159,714; Chartrand et al., 1995, NAR 23, 4092; Breaker et al., 1995, Chem. Bio. 2, 655; Santoro et al., 1997, PNAS 94, 4262; Breaker, 1999, Nature Biotechnology, 17, 422-423; and Santoro et. al., 2000, J. Am. Chem. Soc., 122, 2433-39. The "10-23" DNAzyme motif is one particular type of DNAzyme that was evolved using in vitro selection as generally described in Joyce et al., US 5,807,718 and Santoro et al., supra. Additional DNAzyme motifs can be selected for

using techniques similar to those described in these references, and hence, are within the scope of the present invention.

By "nucleic acid sensor molecule" or "allozyme" as used herein is meant a nucleic acid molecule comprising an enzymatic domain and a sensor domain, where the enzymatic nucleic acid domain's ability to catalyze a chemical reaction is dependent on the interaction with a target signaling molecule, such as a nucleic acid, polynucleotide, oligonucleotide, peptide, polypeptide, or protein, for example HBV RT, HBV RT primer, or HBV Enhancer I sequence. The introduction of chemical modifications, additional functional groups, and/or linkers, to the nucleic acid sensor molecule can provide enhanced catalytic activity of the nucleic acid sensor molecule, increased binding affinity of the sensor domain to a target nucleic acid, and/or improved nuclease/chemical stability of the nucleic acid sensor molecule, and are hence within the scope of the present invention (see for example Usman et al., US Patent Application No. 09/877,526, George et al., US Patent Nos. 5,834,186 and 5,741,679, Shih et al., US Patent No. 5,589,332, Nathan et al., US Patent No 5,871,914, Nathan and Ellington, International PCT publication No. WO 00/24931, Breaker et al., International PCT Publication Nos. WO 00/26226 and 98/27104, and Sullenger et al., US Patent Application Serial No. 09/205,520).

By "sensor component" or "sensor domain" of the nucleic acid sensor molecule as used herein is meant, a nucleic acid sequence (e.g., RNA or DNA or analogs thereof) which interacts with a target signaling molecule, for example a nucleic acid sequence in one or more regions of a target nucleic acid molecule or more than one target nucleic acid molecule, and which interaction causes the enzymatic nucleic acid component of the nucleic acid sensor molecule to either catalyze a reaction or stop catalyzing a reaction. In the presence of target signaling molecule of the invention, such as HBV RT, HBV RT primer, or HBV Enhancer I sequence, the ability of the sensor component, for example, to modulate the catalytic activity of the nucleic acid sensor molecule, is altered or diminished in a manner that can be detected or measured. The sensor component can comprise recognition properties relating to chemical or physical signals capable of modulating the nucleic acid sensor molecule via chemical or physical changes to the structure of the nucleic acid sensor molecule. The sensor component can be derived from a naturally occurring nucleic acid binding sequence, for example, RNAs that bind to other nucleic acid sequences in vivo. Alternately, the sensor component can be derived from a nucleic acid molecule (aptamer), which is evolved to bind to a nucleic acid sequence within a target nucleic acid molecule. The sensor component can be covalently linked to the nucleic acid sensor molecule, or can be non-covalently associated. A person skilled in the art will recognize that all that is required is that the sensor component is able to selectively modulate the activity of the nucleic acid sensor molecule to catalyze a reaction.

By "target molecule" or "target signaling molecule" is meant a molecule capable of interacting with a nucleic acid sensor molecule, specifically a sensor domain of a nucleic acid sensor molecule, in a manner that causes the nucleic acid sensor molecule to be active or inactive. The interaction of the signaling agent with a nucleic acid sensor molecule can result in modification of the enzymatic nucleic acid component of the nucleic acid sensor molecule via chemical, physical, topological, or conformational changes to the structure of the molecule, such that the activity of the enzymatic nucleic acid component of the nucleic acid sensor molecule is modulated, for example is activated or inactivated. Signaling agents can comprise target signaling molecules such as macromolecules, ligands, small molecules, metals and ions, nucleic acid molecules including but not limited to RNA and DNA or analogs thereof, proteins, peptides, antibodies, polysaccharides, lipids, sugars, microbial or cellular metabolites, pharmaceuticals, and organic and inorganic molecules in a purified or unpurified form, for example HBV RT or HBV RT primer.

By "sufficient length" is meant a nucleic acid molecule long enough to provide the intended function under the expected condition. For example, a nucleic acid molecule of the invention needs to be of "sufficient length" to provide stable binding to a target site under the expected binding conditions and environment. In another non-limiting example, for the binding arms of an enzymatic nucleic acid, "sufficient length" means that the binding arm sequence is long enough to provide stable binding to a target site under the expected reaction conditions and environment. The binding arms are not so long as to prevent useful turnover of the nucleic acid molecule. By "stably interact" is meant interaction of the oligonucleotides with target nucleic acid (e.g., by forming hydrogen bonds with complementary nucleotides in the target under physiological conditions) that is sufficient for the intended purpose (e.g., cleavage of target RNA by an enzyme).

By "equivalent" RNA to HBV or HCV is meant to include those naturally occurring RNA molecules having homology (partial or complete) to HBV or HCV proteins or encoding for proteins with similar function as HBV or HCV in various organisms, including human, rodent, primate, rabbit, pig, protozoans, fungi, plants, and other microorganisms and parasites. The equivalent RNA sequence also includes in addition to the coding region, regions such as 5'-untranslated region, 3'-untranslated region, introns, intron-exon junction and the like.

The term "component" of HBV or HCV as used herein refers to a peptide or protein subunit expressed from a HBV or HCV gene.

By "homology" is meant the nucleotide sequence of two or more nucleic acid molecules is partially or completely identical.

By "antisense nucleic acid", it is meant a non-enzymatic nucleic acid molecule that binds to target RNA by means of RNA-RNA or RNA-DNA or RNA-PNA (protein nucleic acid; Egholm et al., 1993 Nature 365, 566) interactions and alters the activity of the target RNA (for a review, see Stein and Cheng, 1993 Science 261, 1004 and Woolf et al., US patent No. 5,849,902). Typically, antisense molecules are complementary to a target sequence along a single contiguous sequence of the antisense molecule. However, in certain embodiments, an antisense molecule can bind to substrate such that the substrate molecule forms a loop, and/or an antisense molecule can bind such that the antisense molecule forms a loop. Thus, the antisense molecule can be complementary to two or more non-contiguous substrate sequences or two or more non-contiguous sequence portions of an antisense molecule can be complementary to a target sequence, or both. For a review of current antisense strategies, see Schmajuk et al., 1999, J. Biol. Chem., 274, 21783-21789, Delihas et al., 1997, Nature, 15, 751-753, Stein et al., 1997, Antisense N. A. Drug Dev., 7, 151, Crooke, 2000, Methods Enzymol., 313, 3-45; Crooke, 1998, Biotech. Genet. Eng. Rev., 15, 121-157, Crooke, 1997, Ad. Pharmacol., 40, 1-49. Antisense molecules of the instant invention can include 2-5A antisense chimera molecules. In addition, antisense DNA can be used to target RNA by means of DNA-RNA interactions, thereby activating RNase H, which digests the target RNA in the duplex. The antisense oligonucleotides can comprise one or more RNAse H activating region that is capable of activating RNAse H cleavage of a target RNA. Antisense DNA can be synthesized chemically or expressed via the use of a single stranded DNA expression vector or equivalent thereof.

By "RNase H activating region" is meant a region (generally greater than or equal to 4-25 nucleotides in length, preferably from 5-11 nucleotides in length) of a nucleic acid molecule capable of binding to a target RNA to form a non-covalent complex that is recognized by cellular RNase H enzyme (see for example Arrow et al., US 5,849,902; Arrow et al., US 5,989,912). The RNase H enzyme binds to the nucleic acid molecule-target RNA complex and cleaves the target RNA sequence. The RNase H activating region comprises, for example, phosphodiester, phosphorothioate (for example, at least four of the nucleotides are phosphorothiote substitutions; more specifically, 4-11 of the nucleotides are phosphorothiote substitutions), phosphorodithioate, 5'-thiophosphate, or methylphosphonate backbone chemistry or a combination thereof. In addition to one or more backbone chemistries described above, the RNase H activating region can also comprise a variety of sugar chemistries. For example, the RNase H activating region can comprise deoxyribose, arabino, fluoroarabino or a combination thereof, nucleotide sugar chemistry. Those skilled in the art will recognize that the foregoing are non-limiting examples and that any combination

of phosphate, sugar and base chemistry of a nucleic acid that supports the activity of RNase H enzyme is within the scope of the definition of the RNase H activating region and the instant invention.

By "2-5A antisense" or "2-5A antisense chimera" is meant an antisense oligonucleotide containing a 5'-phosphorylated 2'-5'-linked adenylate residue. These chimeras bind to target RNA in a sequence-specific manner and activate a cellular 2-5A-dependent ribonuclease which, in turn, cleaves the target RNA (Torrence et al., 1993 Proc. Natl. Acad. Sci. USA 90, 1300; Silverman et al., 2000, Methods Enzymol., 313, 522-533; Player and Torrence, 1998, Pharmacol. Ther., 78, 55-113).

By "triplex nucleic acid" or "triplex oligonucleotide" it is meant a polynucleotide or oligonucleotide that can bind to a double-stranded DNA in a sequence-specific manner to form a triple-strand helix. Formation of such triple helix structure has been shown to modulate transcription of the targeted gene (Duval-Valentin et al., 1992, Proc. Natl. Acad. Sci.USA, 89, 504). Triplex nucleic acid molecules of the invention also include steric blocker nucleic acid molecules that bind to the Enhancer I region of HBV DNA (plus strand and/or minus strand) and prevent translation of HBV genomic DNA.

The term "single stranded RNA" (ssRNA) as used herein refers to a naturally occurring or synthetic ribonucleic acid molecule comprising a linear single strand, for example a ssRNA can be a messenger RNA (mRNA), transfer RNA (tRNA), ribosomal RNA (rRNA) etc. of a gene.

The term "single stranded DNA" (ssDNA) as used herein refers to a naturally occurring or synthetic deoxyribonucleic acid molecule comprising a linear single strand, for example, a ssDNA can be a sense or antisense gene sequence or EST (Expressed Sequence Tag).

The term "allozyme" as used herein refers to an allosteric enzymatic nucleic acid molecule, see for example George et al., US Patent Nos. 5,834,186 and 5,741,679, Shih et al., US Patent No. 5,589,332, Nathan et al., US Patent No 5,871,914, Nathan and Ellington, International PCT publication No. WO 00/24931, Breaker et al., International PCT Publication Nos. WO 00/26226 and 98/27104, and Sullenger et al., International PCT publication No. WO 99/29842.

The term "2-5A chimera" as used herein refers to an oligonucleotide containing a 5'-phosphorylated 2'-5'-linked adenylate residue. These chimeras bind to target RNA in a sequence-specific manner and activate a cellular 2-5A-dependent ribonuclease which, in turn, cleaves the target RNA (Torrence et al., 1993 Proc. Natl. Acad. Sci. USA 90, 1300;

Silverman et al., 2000, Methods Enzymol., 313, 522-533; Player and Torrence, 1998, Pharmacol. Ther., 78, 55-113).

The term "double stranded RNA" or "dsRNA" as used herein refers to a double stranded RNA molecule capable of RNA interference "RNAi", including short interfering RNA "siRNA" see for example Bass, 2001, *Nature*, 411, 428-429; Elbashir et al., 2001, *Nature*, 411, 494-498; and Kreutzer et al., International PCT Publication No. WO 00/44895; Zernicka-Goetz et al., International PCT Publication No. WO 01/36646; Fire, International PCT Publication No. WO 99/32619; Plaetinck et al., International PCT Publication No. WO 01/29058; Deschamps-Depaillette, International PCT Publication No. WO 99/07409; and Li et al., International PCT Publication No. WO 00/44914.

By "gene" it is meant, a nucleic acid that encodes an RNA, for example, nucleic acid sequences including, but not limited to, structural genes encoding a polypeptide.

By "complementarity" is meant that a nucleic acid can form hydrogen bond(s) with another nucleic acid sequence by either traditional Watson-Crick or other non-traditional types. In reference to the nucleic molecules of the present invention, the binding free energy for a nucleic acid molecule with its target or complementary sequence is sufficient to allow the relevant function of the nucleic acid to proceed, e.g., ribozyme cleavage, antisense or triple helix modulation. Determination of binding free energies for nucleic acid molecules is well known in the art (see, e.g., Turner et al., 1987, CSH Symp. Quant. Biol. LII pp.123-133; Frier et al., 1986, Proc. Nat. Acad. Sci. USA 83:9373-9377; Turner et al., 1987, J. Am. Chem. Soc. 109:3783-3785). A percent complementarity indicates the percentage of contiguous residues in a nucleic acid molecule that can form hydrogen bonds (e.g., Watson-Crick base pairing) with a second nucleic acid sequence (e.g., 5, 6, 7, 8, 9, 10 out of 10 being 50%, 60%, 70%, 80%, 90%, and 100% complementary). "Perfectly complementary" means that all the contiguous residues of a nucleic acid sequence will hydrogen bond with the same number of contiguous residues in a second nucleic acid sequence.

As used herein "cell" is used in its usual biological sense, and does not refer to an entire multicellular organism, e.g., specifically does not refer to a human. The cell can be present in an organism, e.g., birds, plants and mammals such as humans, cows, sheep, apes, monkeys, swine, dogs, and cats. The cell can be prokaryotic (e.g., bacterial cell) or eukaryotic (e.g., mammalian or plant cell).

By "HBV proteins" or "HCV proteins" is meant, a protein or a mutant protein derivative thereof, comprising sequence expressed and/or encoded by the HBV genome.

By "highly conserved sequence region" is meant a nucleotide sequence of one or more regions in a target gene does not vary significantly from one generation to the other or from one biological system to the other.

By "highly conserved nucleic acid binding region" is meant an amino acid sequence of one or more regions in a target protein that does not vary significantly from one generation to the other or from one biological system to the other.

By "related to the levels of HBV" is meant that the reduction of HBV expression (specifically HBV gene) RNA levels and thus reduction in the level of the respective protein will relieve, to some extent, the symptoms of the disease or condition.

By "related to the levels of HCV" is meant that the reduction of HCV expression (specifically HCV gene) RNA levels and thus reduction in the level of the respective protein will relieve, to some extent, the symptoms of the disease or condition.

By "RNA" is meant a molecule comprising at least one ribonucleotide residue. By "ribonucleotide" is meant a nucleotide with a hydroxyl group at the 2' position of a β -D-ribofuranose moiety.

By "vector" is meant any nucleic acid- and/or viral-based technique used to express and/or deliver a desired nucleic acid.

By "patient" is meant an organism, which is a donor or recipient of explanted cells or the cells themselves. "Patient" also refers to an organism to which the nucleic acid molecules of the invention can be administered. In one embodiment, a patient is a mammal or mammalian cells. In another embodiment, a patient is a human or human cells.

Other features and advantages of the invention will be apparent from the following description of the preferred embodiments thereof, and from the claims.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

First the drawings will be described briefly.

Drawings

Figure 1 shows the secondary structure model for seven different classes of enzymatic nucleic acid molecules. Arrow indicates the site of cleavage. ----- indicate the target sequence. Lines interspersed with dots are meant to indicate tertiary interactions. - is meant to

indicate base-paired interaction. Group I Intron: P1-P9.0 represent various stem-loop structures (Cech et al., 1994, Nature Struc. Bio., 1, 273). RNase P (M1RNA): EGS represents external guide sequence (Forster et al., 1990, Science, 249, 783; Pace et al., 1990, J. Biol. Chem., 265, 3587). Group II Intron: 5'SS means 5' splice site; 3'SS means 3'-splice site; IBS means intron binding site; EBS means exon binding site (Pyle et al., 1994, Biochemistry, 33, 2716). VS RNA: I-VI are meant to indicate six stem-loop structures; shaded regions are meant to indicate tertiary interaction (Collins, International PCT Publication No. WO 96/19577). HDV Ribozyme: I-IV are meant to indicate four stem-loop structures (Been et al., US Patent No. 5,625,047). Hammerhead Ribozyme: I-III are meant to indicate three stem-loop structures; stems I-III can be of any length and may be symmetrical or asymmetrical (Usman et al., 1996, Curr. Op. Struct. Bio., 1, 527). Hairpin Ribozyme: Helix 1, 4 and 5 can be of any length; Helix 2 is between 3 and 8 base-pairs long; Y is a pyrimidine; Helix 2 (H2) is provided with a least 4 base pairs (i.e., n is 1, 2, 3 or 4) and helix 5 can be optionally provided of length 2 or more bases (preferably 3 - 20 bases, i.e., m is from 1 - 20 or more). Helix 2 and helix 5 may be covalently linked by one or more bases (i.e., r is ≥ 1 base). Helix 1, 4 or 5 may also be extended by 2 or more base pairs (e.g., 4 - 20 base pairs) to stabilize the ribozyme structure, and preferably is a protein binding site. In each instance, each N and N' independently is any normal or modified base and each dash represents a potential base-pairing interaction. These nucleotides may be modified at the sugar, base or phosphate. Complete base-pairing is not required in the helices, but is preferred. Helix 1 and 4 can be of any size (i.e., o and p is each independently from 0 to any number, e.g., 20) as long as some base-pairing is maintained. Essential bases are shown as specific bases in the structure, but those in the art will recognize that one or more may be modified chemically (abasic, base, sugar and/or phosphate modifications) or replaced with another base without significant effect. Helix 4 can be formed from two separate molecules, i.e., without a connecting loop. The connecting loop when present may be a ribonucleotide with or without modifications to its base, sugar or phosphate. "q" \geq is 2 bases. The connecting loop can also be replaced with a non-nucleotide linker molecule. H refers to bases A, U, or C. Y refers to pyrimidine bases. " refers to a covalent bond. (Burke et al., 1996, Nucleic Acids & Mol. Biol., 10, 129; Chowrira et al., US Patent No. 5,631,359).

Figure 2 shows examples of chemically stabilized ribozyme motifs. HH Rz, represents hammerhead ribozyme motif (Usman et al., 1996, Curr. Op. Struct. Bio., 1, 527); NCH Rz represents the NCH ribozyme motif (Ludwig & Sproat, International PCT Publication No. WO 98/58058); G-Cleaver, represents G-cleaver ribozyme motif (Kore et al., 1998, Nucleic Acids Research, 26, 4116-4120). N or n, represent independently a nucleotide which may be same or different and have complementarity to each other; rI, represents ribo-Inosine nucleotide; arrow indicates the site of cleavage within the target. Position 4 of the HH Rz and the NCH Rz is shown as having 2'-C-allyl modification, but

those skilled in the art will recognize that this position can be modified with other modifications well known in the art, so long as such modifications do not significantly inhibit the activity of the ribozyme.

Figure 3 shows an example of the Amberzyme ribozyme motif that is chemically stabilized (see, for example, Beigelman *et al.*, International PCT publication No. WO 99/55857; also referred to as Class I Motif). The Amberzyme motif is a class of enzymatic nucleic acid molecules that do not require the presence of a ribonucleotide (2'-OH) group for activity.

Figure 4 shows an example of the Zinzyme A ribozyme motif that is chemically stabilized (see, for example, International PCT publication No. WO 99/55857; also referred to as Class A Motif). The Zinzyme motif is a class of enzymatic nucleic acid molecules that do not require the presence of a ribonucleotide (2'-OH) group for activity.

Figure 5 shows an example of a DNAzyme motif described by Santoro et al., 1997, PNAS, 94, 4262.

Figure 6 is a bar graph showing the percent change in serum HBV DNA levels following fourteen days of ribozyme treatment in HBV transgenic mice. Ribozymes targeting sites 273 (RPI.18341) and 1833 (RPI.18371) of HBV RNA administerd via continuous s.c. infusion at 10, 30, and 100 mg/kg/day are compared to continuous s.c. infusion administration of scrambled attenuated core ribozyme and saline controls, and orally administered 3TC® (300 mg/kg/day) and saline controls.

Figure 7 is a bar graph showing the mean serum HBV DNA levels following fourteen days of ribozyme treatment in HBV transgenic mice. Ribozymes targeting sites 273 (RPI.18341) and 1833 (RPI.18371) of HBV RNA administerd via continuous s.c. infusion at 10, 30, and 100 mg/kg/day are compared to continuous s.c. infusion administration of scrambled attenuated core ribozyme and saline controls, and orally administered 3TC® (300 mg/kg/day) and saline controls.

Figure 8 is a bar graph showing the decrease in serum HBV DNA (log) levels following fourteen days of ribozyme treatment in HBV transgenic mice. Ribozymes targeting sites 273 (RPI.18341) and 1833 (RPI.18371) of HBV RNA administerd via continuous s.c. infusion at 10, 30, and 100 mg/kg/day are compared to continuous s.c. infusion administration of scrambled attenuated core ribozyme and saline controls, and orally administered 3TC® (300 mg/kg/day) and saline controls.

Figure 9 is a bar graph showing the decrease in HBV DNA in HepG2.2.15 cells after treatment with ribozymes targeting sites 273 (RPI.18341), 1833 (RPI.18371), 1874

(RPI.18372), and 1873 (RPI.18418) of HBV RNA as compared to a scrambled attenuated core ribozyme (RPI.20995).

Figure 10 is a bar graph showing reduction in HBsAg levels following treatment of HepG2 cells with anti-HBV arm, stem, and loop-variant ribozymes (RPI.18341, RPI.22644, RPI.22645, RPI.22646, RPI.22647, RPI.22648, RPI.22649, and RPI.22650) targeting site 273 of the HBV pregenomic RNA as compared to a scrambled attenuated core ribozyme (RPI.20599).

Figure 11 is a bar graph showing reduction in HBsAg levels following treatment of HepG2 cells with RPI 18341 alone or in combination with Infergen®. At either 500 or 1000 units of Infergen®, the addition of 200 nM of RPI.18341 results in a 75-77% increase in anti-HBV activity as judged by the level of HBsAg secreted from the treated Hep G2 cells. Conversely, the anti-HBV activity of RPI.18341(at 200 nM) is increased 31-39% when used in combination of 500 or 1000 units of Infergen®.

Figure 12 is a bar graph showing reduction in HBsAg levels following treatment of HepG2 cells with RPI 18341 alone or in combination with Lamivudine. At 25 nM Lamivudine (3TC®), the addition of 100 nM of RPI.18341 results in a 48% increase in anti-HBV activity as judged by the level of HBsAg secreted from treated Hep G2 cells. Conversely, the anti-HBV activity of RPI.18341 (at 100 nM) is increased 31% when used in combination with 25 nM Lamivudine.

Figure 13 shows a scheme which outlines the steps involved in HBV reverse transcription. The HBV polymerase/reverse transcriptase binds to the 5'-stem-loop of the HBV pregenomic RNA and synthesizes a primer from the UUCA template. The reverse transcriptase and tetramer primer are translocated to the 3'-DR1 site. The RT primer binds to the UUCA sequence in the DR1 element and minus strand synthesis begins.

Figure 14 shows a non-limiting example of inhibition of HBV reverse transcription. A decoy molecule binds to the HBV RT primer, thereby preventing translocation of the RT to the 3'-DR1 site and preventing minus strand synthesis.

Figure 15 shows data of a HBV nucleic acid screen of 2'-O-allyl modified nucleic acid molecules. The levels of HbsAg were determined by ELISA. Inhibition of HBV is correlated to HBsAg antigen levels.

Figure 16 shows data of a HBV nucleic acid screen of 2'-O-methyl modified nucleic acid molecules. The levels of HbsAg were determined by ELISA. Inhibition of HBV is correlated to HBsAg antigen levels.

Figure 17 shows dose response data of 2'-O-methyl modified nucleic acid molecules targeting the HBV reverse transcriptase primer compared to levels of HBsAg.

- Figure 18 shows data of nucleic acid screen of nucleic acid molecules (200 nM) targeting the HBV Enhancer I core region compared to levels of HBsAg.
- Figure 19 shows data of nucleic acid screen of nucleic acid molecules (400 nM) targeting the HBV Enhancer I core region compared to levels of HBsAg.
- Figure 20 shows dose response data of nucleic acid molecules targeting the HBV Enhancer I core region compared to levels of HBsAg.
- Figure 21 shows a graph depicting HepG2.2.15 tumor growth in athymic nu/nu female mice as tumor volume (mm³) vs time (days).
- Figure 22 shows a graph depicting HepG2.2.15 tumor growth in athymic nu/nu female mice as tumor volume (mm³) vs time (days). Inoculated HepG2.2.15 cells were selected for antibiotic resistance to G418 before introduction into the mouse.
- Figure 23 is a schematic representation of the Dual Reporter System utilized to demonstrate enzymatic nucleic acid mediated reduction of luciferase activity in cell culture.
- Figure 24 shows a schematic view of the secondary structure of the HCV 5'UTR (Brown et al., 1992, Nucleic Acids Res., 20, 5041-45; Honda et al., 1999, J. Virol., 73, 1165-74). Major structural domains are indicated in bold. Enzymatic nucleic acid cleavage sites are indicated by arrows. Solid arrows denote sites amenable to amino-modified enzymatic nucleic acid inhibition. Lead cleavage sites (195 and 330) are indicated with oversized solid arrows.
- Figure 25 shows a non-limiting example of a nuclease resistant enzymatic nucleic acid molecule. Binding arms are indicated as stem I and stem III. Nucleotide modifications are indicated as follows: 2'-O-methyl nucleotides, lowercase; ribonucleotides, uppercase G, A; 2'-amino-uridine, u; inverted 3'-3' deoxyabasic, B. The positions of phosphorothioate linkages at the 5'-end of each enzymatic nucleic acid are indicated by subscript "s". H indicates A, C or U ribonucleotide, N' indicates A, C G or U ribonucleotide in substrate, n indicates base complementary to the N'. The U4 and U7 positions in the catalytic core are indicated.
- Figure 26 is a set of bar graphs showing enzymatic nucleic acid mediated inhibition of HCV-luciferase expression in OST7 cells. OST7 cells were transfected with complexes containing reporter plasmids (2 µg/mL), enzymatic nucleic acids (100 nM) and lipid. The ratio of HCV-firefly luciferase luminescence/Renilla luciferase luminescence was determined

for each enzymatic nucleic acid tested and was compared to treatment with the ICR, an irrelevant control enzymatic nucleic acid lacking specificity to the HCV 5'UTR (adjusted to 1). Results are reported as the mean of triplicate samples \pm SD. In Figure 26A, OST7 cells were treated with enzymatic nucleic acids (100 nM) targeting conserved sites (indicated by cleavage site) within the HCV 5'UTR. In Figure 26B, OST7 cells were treated with a subset of enzymatic nucleic acids to lead HCV sites (indicated by cleavage site) and corresponding attenuated core (AC) controls. Percent decrease in firefly/Renilla luciferase ratio after treatment with active enzymatic nucleic acids as compared to treatment with corresponding ACs is shown when the decrease is \geq 50% and statistically significant. Similar results were obtained with 50 nM enzymatic nucleic acid.

Figure 27 is a series of line graphs showing the dose-dependent inhibition of HCV/luciferase expression following enzymatic nucleic acid treatment. Active enzymatic nucleic acid was mixed with corresponding AC to maintain a 100 nM total oligonucleotide concentration and the same lipid charge ratio. The concentration of active enzymatic nucleic acid for each point is shown. Figure 27A-E shows enzymatic nucleic acids targeting sites 79, 81, 142, 195, or 330, respectively. Results are reported as the mean of triplicate samples ± SD.

Figure 28 is a set of bar graphs showing reduction of HCV/luciferase RNA and inhibition of HCV-luciferase expression in OST7 cells. OST7 cells were transfected with complexes containing reporter plasmids (2 μ g/ml), enzymatic nucleic acids, BACs or SACs (50 nM) and lipid. Results are reported as the mean of triplicate samples \pm SD. In Figure 28A the ratio of HCV-firefly luciferase RNA/Renilla luciferase RNA is shown for each enzymatic nucleic acid or control tested. As compared to paired BAC controls (adjusted to 1), luciferase RNA levels were reduced by 40% and 25% for the site 195 or 330 enzymatic nucleic acids, respectively. In Figure 28B the ratio of HCV-firefly luciferase luminescence/Renilla luciferase luminescence is shown after treatment with site 195 or 330 enzymatic nucleic acids or paired controls. As compared to paired BAC controls (adjusted to 1), inhibition of protein expression was 70% and 40% for the site 195 or 330 enzymatic nucleic acids, respectively P < 0.01.

Figure 29 is a set a bar graphs showing interferon (IFN) alpha 2a and 2b dose response in combination with site 195 anti-HCV enzymatic nucleic acid treatment. Figure 29A shows data for IFN alfa 2a treatment. Figure 29B shows data for IFN alfa 2b treatment. Viral yield is reported from HeLa cells pretreated with IFN in units/ml (U/ml) as indicated for 4 h prior to infection and then treated with either 200 nM control (SAC) or site 195 anti-HCV enzymatic nucleic acid (195 RZ) for 24 h after infection. Cells were infected with a MOI =

0.1 for 30 min and collected at 24 h post infection. Error bars represent the S.D. of the mean of triplicate determinations.

Figure 30 is a line graph showing site 195 anti-HCV enzymatic nucleic acid dose response in combination with interferon (IFN) alpha 2a and 2b pretreatment. Viral yield is reported from HeLa cells pretreated for 4 h with or without IFN and treated with doses of site 195 anti-HCV enzymatic nucleic acid (195 RZ) as indicated for 24 h after infection. Anti-HCV enzymatic nucleic acid was mixed with control oligonucleotide (SAC) to maintain a constant 200 nM total dose of nucleic acid for delivery. Cells were infected with a MOI = 0.1 for 30 min and collected at 24 h post infection. Error bars represent the S.D. of the mean of triplicate determinations.

Figure 31 is a set of bar graphs showing data from consensus interferon (CIFN)/enzymatic nucleic acid combination treatment. Figure 31A shows CIFN dose response with site 195 anti-HCV enzymatic nucleic acid treatment. Viral yield is reported from cells pretreated with CIFN in units/ml (U/ml) as indicated and treated with either 200 nM control (SAC) or site 195 anti-HCV enzymatic nucleic acid (195 RZ). Figure 31B shows site 195 anti-HCV enzymatic nucleic acid dose response with CIFN pretreatment. Viral yield is reported from cells pretreated with or without CIFN and treated with concentrations of site 195 anti-HCV enzymatic nucleic acid (195 RZ) as indicated. Anti-HCV enzymatic nucleic acid was mixed with control oligonucleotide (SAC) to maintain a constant 200 nM total dose of nucleic acid for delivery. Cells were infected with a MOI = 0.1 for 30 min. and collected at 24 h post infection. Error bars represent the S.D. of the mean of triplicate determinations.

Figure 32 is a bar graph showing enzymatic nucleic acid activity and enhanced antiviral effect of an anti-HCV enzymatic nucleic acid targeting site 195 used in combination with consensus interferon (CIFN). Viral yield is reported from cells treated as indicated. BAC, cells were treated with 200 nM BAC (binding attenuated control) for 24 h after infection; CIFN+BAC, cells were treated with 12.5 U/ml CIFN for 4 h prior to infection and with 200 nM BAC for 24 h after infection; 195 RZ, cells were treated with 200 nM site 195 anti-HCV enzymatic nucleic acid for 24 h after infection and with 200 nM site 195 anti-HCV enzymatic nucleic acid for 24 h after infection and with 200 nM site 195 anti-HCV enzymatic nucleic acid for 24 h after infection. Cells were infected with a MOI = 0.1 for 30 min. Error bars represent the S.D. of the mean of triplicate determinations.

Figure 33 is a bar graph showing inhibition of a HCV-PV chimera replication by treatment with zinzyme enzymatic nucleic acid molecules targeting different sites within the HCV 5'-UTR compared to a scrambled attenuated core control (SAC) zinzyme.

Figure 34 is a bar graph showing inhibition of a HCV-PV chimera replication by antisense nucleic acid molecules targeting conserved regions of the HCV 5'-UTR compared to scrambled antisense controls.

Figure 35 shows the structure of compounds (2-5A) utilized in the study. "X" denotes the position of oxygen (O) in analog I or sulfur (S) in thiophosphate (P=S) analog II. The 2-5A compounds were synthesized, deprotected and purified as described herein utilizing CPG support with 3'-inverted abasic nucleotide. For chain extension 5'-O-(4,4'-dimetoxytrityl)-3'-O-(tert-butyldimethylsilyl)-N6-benzoyladenosine-2-cyanoethyl-N,N-diisopropyl-phosphoramidite (Chem. Genes Corp., Waltham, MA) was employed. Introduction of a 5'-terminal phosphate (analog I) or thiophosphate (analog II) group was performed with "Chemical Phosphorylation Reagent" (Glen Research, Sterling, VA). Structures of the final compounds were confirmed by MALDI-TOF analysis.

Figure 36 is a bar graph showing ribozyme activity and enhanced antiviral effect. (A) Interferon/ribozyme combination treatment. (B) 2-5A/ribozyme combination treatment. HeLa cells seeded in 96-well plates (10,000 cells per well) were pretreated as indicated for 4 hours. For pretreatment, SAC (RPI 17894), RZ (RPI 13919), and 2-5A analog I (RPI 21096) (200 nM) were complexed with lipid cytofectin. Cells were then infected with HCV-PV at a multiplicity of infection of 0.1. Virus inoculum was replaced after 30 minutes with media containing 5% serum and 100 nM RZ or SAC as indicated, complexed with cytofectin RPI.9778. After 20 hours, cells were lysed by 3 freeze/thaw cycles and virus was quantified by plaque assay. Plaque forming units (PFU)/ml are shown as the mean of triplicate samples + SEM. The absolute amount of viral yield in treated cells varied from day to day, presumably due to day to day variations in cell plating and transfection complexation. None, normal media; IFN, 10 U/ml consensus interferon; SAC, scrambled arm attenuated core control (RPI 17894); RZ, anti-HCV ribozyme (RPI 13919); 2-5A, (RPI 21096).

Figure 37 is a graph showing the inhibition of viral replication with anti-HCV ribozyme (RPI 13919) or 2-5A (RPI 21096) treatment. HeLa cells were treated as described in Figure 36 except that there was no pretreatment and 200 nM oligonucleotide was used for treatment. 2-5A P=S contains a 5'-terminal thiophosphate (RPI21095) (see Figure 35).

Figure 38 is a bar graph showing anti-HCV ribozyme in combination with 2-5A treatment. HeLa cells were treated as described in Figure 37 except concentrations were covaried as shown to maintain a constant 200 nM total oligonucleotide dose for transfection. Cells treated with 50 nM anti-HCV ribozyme (RPI 13919) (middle bars) were also treated with 150 nM SAC (RPI 17894) or 2-5A (RPI 21096); likewise, cells treated with 100 nM anti-HCV ribozyme (bars at right) were also treated with 100 nM SAC or 2-5A.

Mechanism of action of Nucleic Acid Molecules of the Invention

Decoy: Nucleic acid decoy molecules are mimetics of naturally occurring nucleic acid molecules or portions of naturally occurring nucleic acid molecules that can be used to modulate the function of a specific protein or a nucleic acid whose activity is dependant on interaction with the naturally occurring nucleic acid molecule. Decoys modulate the function of a target protein or nucleic acid by competing with authentic nucleic acid binding to the ligand of interest. Often, the nucleic acid decoy is a truncated version of a nucleic acid sequence that is recognized, for example by a particular protein, such as a transcription factor or polymerase. Decoys can be chemically modified to increase binding affinity to the target ligand as well as to increase the enzymatic and chemical stability of the decoy. In addition, bridging and non-bridging linkers can be introduced into the decoy sequence to provide additional binding affinity to the target ligand. Decoy molecules of the invention that bind to an HCV or HBV target, such as HBV reverse transcriptase or HBV reverse transcriptase primer, or an enhancer region of the HBV pregenomic RNA, for example the Enhancer I element, modulate the transcription of RNA to DNA and therefore modulate expression of the pregenomic RNA of the virus (see Figures 13 and 14).

Aptamer: Nucleic acid aptamers can be selected to specifically bind to a particular ligand of interest (see for example Gold et al., US 5,567,588 and US 5,475,096, Gold et al., 1995, Annu. Rev. Biochem., 64, 763; Brody and Gold, 2000, J. Biotechnol., 74, 5; Sun, 2000, Curr. Opin. Mol. Ther., 2, 100; Kusser, 2000, J. Biotechnol., 74, 27; Hermann and Patel, 2000, Science, 287, 820; and Jayasena, 1999, Clinical Chemistry, 45, 1628). For example, the use of in vitro selection can be applied to evolve nucleic acid aptamers with binding specificity for HBV RT and/or HBV RT primer. Nucleic acid aptamers can include chemical modifications and linkers as described herein. Aptamer molecules of the invention that bind to a reverse transcriptase or reverse transcriptase primer, such as HBV reverse transcriptase or HBV reverse transcriptase primer, modulate the transcription of RNA to DNA and therefore modulate expression of the pregenomic RNA of the virus.

Antisense: Antisense molecules can be modified or unmodified RNA, DNA, or mixed polymer oligonucleotides and primarily function by specifically binding to matching sequences resulting in modulation of peptide synthesis (Wu-Pong, Nov 1994, *BioPharm*, 20-33). The antisense oligonucleotide binds to target RNA by Watson Crick base-pairing and blocks gene expression by preventing ribosomal translation of the bound sequences either by steric blocking or by activating RNase H enzyme. Antisense molecules can also alter protein synthesis by interfering with RNA processing or transport from the nucleus into the cytoplasm (Mukhopadhyay & Roth, 1996, *Crit. Rev. in Oncogenesis* 7, 151-190).

In addition, binding of single stranded DNA to RNA may result in nuclease degradation of the heteroduplex (Wu-Pong, *supra*; Crooke, *supra*). To date, the only backbone modified DNA chemistry which will act as substrates for RNase H are phosphorothioates, phosphorodithioates, and borontrifluoridates. Recently, it has been reported that 2'-arabino and 2'-fluoro arabino- containing oligos can also activate RNase H activity.

A number of antisense molecules have been described that utilize novel configurations of chemically modified nucleotides, secondary structure, and/or RNase H substrate domains (Woolf et al., International PCT Publication No. WO 98/13526; Thompson et al., USSN 60/082,404 which was filed on April 20, 1998; Hartmann et al., USSN 60/101,174 which was filed on September 21, 1998) all of these are incorporated by reference herein in their entirety.

Antisense DNA can be used to target RNA by means of DNA-RNA interactions, thereby activating RNase H, which digests the target RNA in the duplex. Antisense DNA can be chemically synthesized or can be expressed via the use of a single stranded DNA intracellular expression vector or the equivalent thereof.

Triplex Forming Oligonucleotides (TFO): Single stranded oligonucleotide can be designed to bind to genomic DNA in a sequence specific manner. TFOs can be comprised of pyrimidine-rich oligonucleotides which bind DNA helices through Hoogsteen Base-pairing (Wu-Pong, supra). In addition, TFOs can be chemically modified to increase binding affinity to target DNA sequences. The resulting triple helix composed of the DNA sense, DNA antisense, and TFO disrupts RNA synthesis by RNA polymerase. The TFO mechanism can result in gene expression or cell death since binding may be irreversible (Mukhopadhyay & Roth, supra)

2'-5' Oligoadenylates: The 2-5A system is an interferon-mediated mechanism for RNA degradation found in higher vertebrates (Mitra et al., 1996, Proc Nat Acad Sci USA 93, 6780-6785). Two types of enzymes, 2-5A synthetase and RNase L, are required for RNA cleavage. The 2-5A synthetases require double stranded RNA to form 2'-5' oligoadenylates (2-5A). 2-5A then acts as an allosteric effector for utilizing RNase L, which has the ability to cleave single stranded RNA. The ability to form 2-5A structures with double stranded RNA makes this system particularly useful for modulation of viral replication.

(2'-5') oligoadenylate structures can be covalently linked to antisense molecules to form chimeric oligonucleotides capable of RNA cleavage (Torrence, *supra*). These molecules putatively bind and activate a 2-5A-dependent RNase, the oligonucleotide/enzyme complex then binds to a target RNA molecule which can then be cleaved by the RNase enzyme. The covalent attachment of 2'-5' oligoadenylate structures is not limited to

antisense applications, and can be further elaborated to include attachment to nucleic acid molecules of the instant invention.

RNA interference (RNAi): RNA interference refers to the process of sequence specific post transcriptional gene silencing in animals mediated by short interfering RNAs (siRNA) (Fire et al., 1998, Nature, 391, 806). The corresponding process in plants is commonly referred to as post transcriptional gene silencing or RNA silencing and is also referred to as quelling in fungi. The process of post transcriptional gene silencing is thought to be an evolutionarily conserved cellular defense mechanism used to prevent the expression of foreign genes which is commonly shared by diverse flora and phyla (Fire et al., 1999, Trends Genet., 15, 358). Such protection from foreign gene expression may have evolved in response to the production of double stranded RNAs (dsRNA) derived from viral infection or the random integration of transposon elements into a host genome via a cellular response that specifically destroys homologous single stranded RNA or viral genomic RNA. The presence of dsRNA in cells triggers the RNAi response though a mechanism that has yet to be fully characterized. This mechanism appears to be different from the interferon response that results from dsRNA mediated activation of protein kinase PKR and 2',5'-oligoadenylate synthetase resulting in non-specific cleavage of mRNA by ribonuclease L.

The presence of long dsRNAs in cells stimulates the activity of a ribonuclease III enzyme referred to as dicer. Dicer is involved in the processing of the dsRNA into short pieces of dsRNA known as short interfering RNAs (siRNA) (Berstein et al., 2001, Nature, 409, 363). Short interfering RNAs derived from dicer activity are typically about 21-23 nucleotides in length and comprise about 19 base pair duplexes. Dicer has also been implicated in the excision of 21 and 22 nucleotide small temporal RNAs (stRNA) from precursor RNA of conserved structure that are implicated in translational control (Hutvagner et al., 2001, Science, 293, 834). The RNAi response also features an endonuclease complex containing a siRNA, commonly referred to as an RNA-induced silencing complex (RISC), which mediates cleavage of single stranded RNA having sequence homologous to the siRNA. Cleavage of the target RNA takes place in the middle of the region complementary to the guide sequence of the siRNA duplex (Elbashir et al., 2001, Genes Dev., 15, 188).

Short interfering RNA mediated RNAi has been studied in a variety of systems. Fire et al., 1998, Nature, 391, 806, were the first to observe RNAi in C. Elegans. Wianny and Goetz, 1999, Nature Cell Biol., 2, 70, describes RNAi mediated by dsRNA in mouse embryos. Hammond et al., 2000, Nature, 404, 293, describe RNAi in Drosophila cells transfected with dsRNA. Elbashir et al., 2001, Nature, 411, 494, describe RNAi induced by introduction of duplexes of synthetic 21-nucleotide RNAs in cultured mammalian cells including human embryonic kidney and HeLa cells. Recent work in Drosophila embryonic lysates has revealed certain requirements for siRNA length, structure, chemical composition,

and sequence that are essential to mediate efficient RNAi activity. These studies have shown that 21 nucleotide siRNA duplexes are most active when containing two nucleotide 3'-overhangs. Furthermore, substitution of one or both siRNA strands with 2'-deoxy or 2'-O-methyl nucleotides abolishes RNAi activity, whereas substitution of 3'-terminal siRNA nucleotides with deoxy nucleotides was shown to be tolerated. Mismatch sequences in the center of the siRNA duplex were also shown to abolish RNAi activity. In addition, these studies also indicate that the position of the cleavage site in the target RNA is defined by the 5'-end of the siRNA guide sequence rather than the 3'-end (Elbashir et al., 2001, EMBO J., 20, 6877). Other studies have indicated that a 5'-phosphate on the target-complementary strand of a siRNA duplex is required for siRNA activity and that ATP is utilized to maintain the 5'-phosphate moiety on the siRNA (Nykanen et al., 2001, Cell, 107, 309), however siRNA molecules lacking a 5'-phosphate are active when introduced exogenously, suggesting that 5'-phosphorylation of siRNA constructs may occur in vivo.

Enzymatic Nucleic Acid: Several varieties of naturally occurring enzymatic RNAs are presently known (Doherty and Doudna, 2001, Annu. Rev. Biophys. Biomol. Struct., 30, 457-475; Symons, 1994, Curr. Opin. Struct. Biol., 4, 322-30). In addition, several in vitro selection (evolution) strategies (Orgel, 1979, Proc. R. Soc. London, B 205, 435) have been used to evolve new nucleic acid catalysts capable of catalyzing cleavage and ligation of phosphodiester linkages (Joyce, 1989, Gene, 82, 83-87; Beaudry et al., 1992, Science 257, 635-641; Joyce, 1992, Scientific American 267, 90-97; Breaker et al., 1994, TIBTECH 12, 268; Bartel et al., 1993, Science 261:1411-1418; Szostak, 1993, TIBS 17, 89-93; Kumar et al., 1995, FASEB J., 9, 1183; Breaker, 1996, Curr. Op. Biotech., 7, 442; Santoro et al., 1997, Proc. Natl. Acad. Sci., 94, 4262; Tang et al., 1997, RNA 3, 914; Nakamaye & Eckstein, 1994, supra; Long & Uhlenbeck, 1994, supra; Ishizaka et al., 1995, supra; Vaish et al., 1997, Biochemistry 36, 6495). Each can catalyze a series of reactions including the hydrolysis of phosphodiester bonds in trans (and thus can cleave other RNA molecules) under physiological conditions.

Nucleic acid molecules of this invention can block HBV or HCV protein expression and can be used to treat disease or diagnose disease associated with the levels of HBV or HCV.

The enzymatic nature of an enzymatic nucleic acid has significant advantages, such as the concentration of nucleic acid necessary to affect a therapeutic treatment is low. This advantage reflects the ability of the enzymatic nucleic acid molecule to act enzymatically. Thus, a single enzymatic nucleic acid molecule is able to cleave many molecules of target RNA. In addition, the enzymatic nucleic acid molecule is a highly specific modulator, with the specificity of modulation depending not only on the base-pairing mechanism of binding to the target RNA, but also on the mechanism of target RNA cleavage. Single mismatches,

or base-substitutions, near the site of cleavage can be chosen to completely eliminate catalytic activity of an enzymatic nucleic acid molecule.

Nucleic acid molecules having an endonuclease enzymatic activity are able to repeatedly cleave other separate RNA molecules in a nucleotide base sequence-specific manner. With proper design and construction, such enzymatic nucleic acid molecules can be targeted to any RNA transcript, and efficient cleavage achieved in vitro (Zaug et al., 324, Nature 429 1986; Uhlenbeck, 1987 Nature 328, 596; Kim et al., 84 Proc. Natl. Acad. Sci. USA 8788, 1987; Dreyfus, 1988, Einstein Quart. J. Bio. Med., 6, 92; Haseloff and Gerlach, 334 Nature 585, 1988; Cech, 260 JAMA 3030, 1988; and Jefferies et al., 17 Nucleic Acids Research 1371, 1989; Chartrand et al., 1995, Nucleic Acids Research 23, 4092; Santoro et al., 1997, PNAS 94, 4262).

Because of their sequence specificity, trans-cleaving enzymatic nucleic acid molecules show promise as therapeutic agents for human disease (Usman & McSwiggen, 1995 Ann. Rep. Med. Chem. 30, 285-294; Christoffersen and Marr, 1995 J. Med. Chem. 38, 2023-2037). Enzymatic nucleic acid molecule can be designed to cleave specific RNA targets within the background of cellular RNA. Such a cleavage event renders the RNA non-functional and abrogates protein expression from that RNA. In this manner, synthesis of a protein associated with a disease state can be selectively modulated (Warashina et al., 1999, Chemistry and Biology, 6, 237-250.

The present invention also features nucleic acid sensor molecules or allozymes having sensor domains comprising nucleic acid decoys and/or aptamers of the invention. Interaction of the nucleic acid sensor molecule's sensor domain with a molecular target, such as HCV or HBV target, e.g., HBV RT and/or HBV RT primer, can activate or inactivate the enzymatic nucleic acid domain of the nucleic acid sensor molecule, such that the activity of the nucleic acid sensor molecule is modulated in the presence of the target-signaling molecule. The nucleic acid sensor molecule can be designed to be active in the presence of the target molecule or alternately, can be designed to be inactive in the presence of the molecular target. For example, a nucleic acid sensor molecule is designed with a sensor domain having the sequence (UUCA)_n, where n is an integer from 1-10. In a non-limiting example, interaction of the HBV RT primer with the sensor domain of the nucleic acid sensor molecule can activate the enzymatic nucleic acid domain of the nucleic acid sensor molecule such that the sensor molecule catalyzes a reaction, for example cleavage of HBV RNA. In this example, the nucleic acid sensor molecule is activated in the presence of HBV RT or HBV RT primer, and can be used as a therapeutic to treat HBV infection. Alternately, the reaction can comprise cleavage or ligation of a labeled nucleic acid reporter molecule, providing a useful diagnostic reagent to detect the presence of HBV in a system.

HCV Target sites

Targets for useful nucleic acid molecules and nuclease activating compounds or chimeras can be determined as disclosed in Draper et al., WO 93/23569; Sullivan et al., WO 93/23057; Thompson et al., WO 94/02595; Draper et al., WO 95/04818; McSwiggen et al., US Patent No. 5,525,468. Rather than repeat the guidance provided in those documents here, below are provided specific examples of such methods, not limiting to those in the art. Nucleic acid molecules and nuclease activating compounds or chimeras to such targets are designed as described in those applications and synthesized to be tested in vitro and in vivo, as also described. Such nucleic acid molecules and nuclease activating compounds or chimeras can also be optimized and delivered as described therein.

The sequence of HCV RNAs were screened for optimal enzymatic nucleic acid molecule target sites using a computer folding algorithm. Enzymatic nucleic acid cleavage sites were identified. These sites are shown in Tables XVIII, XIX, XX and XXIII (All sequences are 5' to 3' in the tables). The nucleotide base position is noted in the tables as that site to be cleaved by the designated type of enzymatic nucleic acid molecule. The nucleotide base position is noted in the tables as that site to be cleaved by the designated type of enzymatic nucleic acid molecule.

Because HCV RNAs are highly homologous in certain regions, some enzymatic nucleic acid molecule target sites are also homologous. In this case, a single enzymatic nucleic acid molecule will target different classes of HCV RNA. The advantage of one enzymatic nucleic acid molecule that targets several classes of HCV RNA is clear, especially in cases where one or more of these RNAs can contribute to the disease state.

Enzymatic nucleic acid molecules were designed that could bind and were individually analyzed by computer folding (Jaeger et al., 1989 Proc. Natl. Acad. Sci. USA, 86, 7706) to assess whether the enzymatic nucleic acid molecule sequences fold into the appropriate secondary structure. Those enzymatic nucleic acid molecules with unfavorable intramolecular interactions between the binding arms and the catalytic core are eliminated from consideration. Varying binding arm lengths can be chosen to optimize activity. Generally, at least 5 bases on each arm are able to bind to, or otherwise interact with, the target RNA. Enzymatic nucleic acid molecules were designed to anneal to various sites in the mRNA message. The binding arms are complementary to the target site sequences described above.

HBV Target sites

Targets for useful ribozymes and antisense nucleic acids targeting HBV can be determined as disclosed in Draper et al., WO 93/23569; Sullivan et al., WO 93/23057; Thompson et al., WO 94/02595; Draper et al., WO 95/04818; McSwiggen et al., US Patent No. 5,525,468. Other examples include the following PCT applications, which concern inactivation of expression of disease-related genes: WO 95/23225, WO 95/13380, WO 94/02595. Rather than repeat the guidance provided in those documents here, below are provided specific examples of such methods; not limiting to those in the art. Ribozymes and antisense to such targets are designed as described in those applications and synthesized to be tested in vitro and in vivo, as also described. The sequence of human HBV RNAs (for example, accession AF100308.1; HBV strain 2-18; additionally, other HBV strains can be screened by one skilled in the art, see Table III for other possible strains) were screened for optimal enzymatic nucleic acid and antisense target sites using a computer-folding algorithm. Antisense, hammerhead, DNAzyme, NCH (Inozyme), amberzyme, zinzyme or G-Cleaver ribozyme binding/cleavage sites were identified. These sites are shown in Tables V to XI (all sequences are 5' to 3' in the tables; X can be any base-paired sequence, the actual sequence is not relevant here). The nucleotide base position is noted in the Tables as that site to be cleaved by the designated type of enzymatic nucleic acid molecule. Table IV shows substrate positions selected from Renbo et al., 1987, Sci. Sin., 30, 507, used in Draper, USSN (07/882,712), filed May 14, 1992, entitled "METHOD AND REAGENT FOR INHIBITING HEPATITIS B VIRUS REPLICATION" and Draper et al., International PCT publication No. WO 93/23569, filed April 29, 1993, entitled "METHOD AND REAGENT FOR INHIBITING VIRAL REPLICATION". While human sequences can be screened and enzymatic nucleic acid molecule and/or antisense thereafter designed, as discussed in Stinchcomb et al., WO 95/23225, mouse targeted ribozymes can be useful to test efficacy of action of the enzymatic nucleic acid molecule and/or antisense prior to testing in humans.

Antisense, hammerhead, DNAzyme, NCH (Inozyme), amberzyme, zinzyme or G-Cleaver ribozyme binding/cleavage sites were identified, as discussed above. The nucleic acid molecules were individually analyzed by computer folding (Jaeger et al., 1989 Proc. Natl. Acad. Sci. USA, 86, 7706) to assess whether the sequences fold into the appropriate secondary structure. Those nucleic acid molecules with unfavorable intramolecular interactions such as between the binding arms and the catalytic core were eliminated from consideration. Varying binding arm lengths can be chosen to optimize activity.

Antisense, hammerhead, DNAzyme, NCH, amberzyme, zinzyme or G-Cleaver ribozyme binding/cleavage sites were identified and were designed to anneal to various sites in the RNA target. The binding arms are complementary to the target site sequences

described above. The nucleic acid molecules were chemically synthesized. The method of synthesis used follows the procedure for normal DNA/RNA synthesis as described below and in Usman et al., 1987 J. Am. Chem. Soc., 109, 7845; Scaringe et al., 1990 Nucleic Acids Res., 18, 5433; Wincott et al., 1995 Nucleic Acids Res. 23, 2677-2684; and Caruthers et al., 1992, Methods in Enzymology 211,3-19.

Synthesis of Nucleic acid Molecules

Synthesis of nucleic acids greater than 100 nucleotides in length is difficult using automated methods, and the therapeutic cost of such molecules is prohibitive. In this invention, small nucleic acid motifs ("small" refers to nucleic acid motifs no more than 100 nucleotides in length, preferably no more than 80 nucleotides in length, and most preferably no more than 50 nucleotides in length; e.g., decoy nucleic acid molecules, aptamer nucleic acid molecules antisense nucleic acid molecules, enzymatic nucleic acid molecules) are preferably used for exogenous delivery. The simple structure of these molecules increases the ability of the nucleic acid to invade targeted regions of protein and/or RNA structure. Exemplary molecules of the instant invention are chemically synthesized, and others can similarly be synthesized.

Oligonucleotides (e.g., DNA oligonucleotides) are synthesized using protocols known in the art, for example as described in Caruthers et al., 1992, Methods in Enzymology 211, 3-19, Thompson et al., International PCT Publication No. WO 99/54459, Wincott et al., 1995, Nucleic Acids Res. 23, 2677-2684, Wincott et al., 1997, Methods Mol. Bio., 74, 59, Brennan et al., 1998, Biotechnol Bioeng., 61, 33-45, and Brennan, US patent No. 6,001,311. The synthesis of oligonucleotides makes use of common nucleic acid protecting and coupling groups, such as dimethoxytrityl at the 5'-end, and phosphoramidites at the 3'-end. In a nonlimiting example, small scale syntheses are conducted on a 394 Applied Biosystems, Inc. synthesizer using a 0.2 µmol scale protocol with a 2.5 min coupling step for 2'-O-methylated nucleotides and a 45 sec coupling step for 2'-deoxy nucleotides. Table II outlines the amounts and the contact times of the reagents used in the synthesis cycle. Alternatively, syntheses at the 0.2 µmol scale can be performed on a 96-well plate synthesizer, such as the instrument produced by Protogene (Palo Alto, CA) with minimal modification to the cycle. A 33-fold excess (60 µL of 0.11 M = 6.6 µmol) of 2'-O-methyl phosphoramidite and a 105fold excess of S-ethyl tetrazole (60 µL of 0.25 M = 15 µmol) can be used in each coupling cycle of 2'-O-methyl residues relative to polymer-bound 5'-hydroxyl. A 22-fold excess (40 μ L of 0.11 M = 4.4 μ mol) of deoxy phosphoramidite and a 70-fold excess of S-ethyl tetrazole (40 μ L of 0.25 M = 10 μ mol) can be used in each coupling cycle of deoxy residues relative to polymer-bound 5'-hydroxyl. Average coupling yields on the 394 Applied Biosystems, Inc. synthesizer, determined by colorimetric quantitation of the trityl fractions, are typically 97.5-

99%. Other oligonucleotide synthesis reagents for the 394 Applied Biosystems, Inc. synthesizer include the following: detritylation solution is 3% TCA in methylene chloride (ABI); capping is performed with 16% N-methyl imidazole in THF (ABI) and 10% acetic anhydride/10% 2,6-lutidine in THF (ABI); and oxidation solution is 16.9 mM I₂, 49 mM pyridine, 9% water in THF (PERSEPTIVETM). Burdick & Jackson Synthesis Grade acetonitrile is used directly from the reagent bottle. S-Ethyltetrazole solution (0.25 M in acetonitrile) is made up from the solid obtained from American International Chemical, Inc. Alternately, for the introduction of phosphorothioate linkages, Beaucage reagent (3H-1,2-Benzodithiol-3-one 1,1-dioxide, 0.05 M in acetonitrile) is used.

Deprotection of the DNA-based oligonucleotides is performed as follows: the polymer-bound trityl-on oligoribonucleotide is transferred to a 4 mL glass screw top vial and suspended in a solution of 40% aq. methylamine (1 mL) at 65 °C for 10 min. After cooling to -20 °C, the supernatant is removed from the polymer support. The support is washed three times with 1.0 mL of EtOH:MeCN:H2O/3:1:1, vortexed and the supernatant is then added to the first supernatant. The combined supernatants, containing the oligoribonucleotide, are dried to a white powder.

The method of synthesis used for normal RNA including certain decoy nucleic acid molecules and enzymatic nucleic acid molecules follows the procedure as described in Usman et al., 1987, J. Am. Chem. Soc., 109, 7845; Scaringe et al., 1990, Nucleic Acids Res., 18, 5433; and Wincott et al., 1995, Nucleic Acids Res. 23, 2677-2684 Wincott et al., 1997, Methods Mol. Bio., 74, 59, and makes use of common nucleic acid protecting and coupling groups, such as dimethoxytrityl at the 5'-end, and phosphoramidites at the 3'-end. In a nonlimiting example, small scale syntheses are conducted on a 394 Applied Biosystems, Inc. synthesizer using a 0.2 µmol scale protocol with a 7.5 min coupling step for alkylsilyl protected nucleotides and a 2.5 min coupling step for 2'-O-methylated nucleotides. Table II outlines the amounts and the contact times of the reagents used in the synthesis cycle. Alternatively, syntheses at the 0.2 µmol scale can be done on a 96-well plate synthesizer. such as the instrument produced by Protogene (Palo Alto, CA) with minimal modification to the cycle. A 33-fold excess (60 μ L of 0.11 M = 6.6 μ L of 0.11 M = 6.6 μ L of 2'-O-methyl phosphoramidite and a 75-fold excess of S-ethyl tetrazole (60 μ L of 0.25 M = 15 μ mol) can be used in each coupling cycle of 2'-O-methyl residues relative to polymer-bound 5'-hydroxyl. A 66-fold excess (120 μ L of 0.11 M = 13.2 μ mol) of alkylsilyl (ribo) protected phosphoramidite and a 150-fold excess of S-ethyl tetrazole (120 μL of 0.25 M = 30 μmol) can be used in each coupling cycle of ribo residues relative to polymer-bound 5'-hydroxyl. Average coupling yields on the 394 Applied Biosystems, Inc. synthesizer, determined by colorimetric quantitation of the trityl fractions, are typically 97.5-99%. Other oligonucleotide synthesis reagents for the 394 Applied Biosystems, Inc. synthesizer include the following: detritylation

solution is 3% TCA in methylene chloride (ABI); capping is performed with 16% N-methyl imidazole in THF (ABI) and 10% acetic anhydride/10% 2,6-lutidine in THF (ABI); oxidation solution is 16.9 mM I₂, 49 mM pyridine, 9% water in THF (PERSEPTIVE™). Burdick & Jackson Synthesis Grade acetonitrile is used directly from the reagent bottle. S-Ethyltetrazole solution (0.25 M in acetonitrile) is made up from the solid obtained from American International Chemical, Inc. Alternately, for the introduction of phosphorothioate linkages, Beaucage reagent (3H-1,2-Benzodithiol-3-one 1,1-dioxide0.05 M in acetonitrile) is used.

Deprotection of the RNA is performed using either a two-pot or one-pot protocol. For the two-pot protocol, the polymer-bound trityl-on oligoribonucleotide is transferred to a 4 mL glass screw top vial and suspended in a solution of 40% aq. methylamine (1 mL) at 65 °C for 10 min. After cooling to -20 °C, the supernatant is removed from the polymer support. The support is washed three times with 1.0 mL of EtOH:MeCN:H2O/3:1:1, vortexed and the supernatant is then added to the first supernatant. The combined supernatants, containing the oligoribonucleotide, are dried to a white powder. The base deprotected oligoribonucleotide is resuspended in anhydrous TEA/HF/NMP solution (300 µL of a solution of 1.5 mL N-methylpyrrolidinone, 750 µL TEA and 1 mL TEA•3HF to provide a 1.4 M HF concentration) and heated to 65 °C. After 1.5 h, the oligomer is quenched with 1.5 M NH₄HCO₃.

Alternatively, for the one-pot protocol, the polymer-bound trityl-on oligoribonucleotide is transferred to a 4 mL glass screw top vial and suspended in a solution of 33% ethanolic methylamine/DMSO: 1/1 (0.8 mL) at 65 °C for 15 min. The vial is brought to r.t. TEA•3HF (0.1 mL) is added and the vial is heated at 65 °C for 15 min. The sample is cooled at -20 °C and then quenched with 1.5 M NH₄HCO₃.

For purification of the trityl-on oligomers, the quenched NH₄HCO₃ solution is loaded onto a C-18 containing cartridge that had been prewashed with acetonitrile followed by 50 mM TEAA. After washing the loaded cartridge with water, the RNA is detritylated with 0.5% TFA for 13 min. The cartridge is then washed again with water, salt exchanged with 1 M NaCl and washed with water again. The oligonucleotide is then eluted with 30% acetonitrile.

Inactive hammerhead ribozymes or binding attenuated control (BAC) oligonucleotides are synthesized by substituting a U for G₅ and a U for A₁₄ (numbering from Hertel, K. J., et al., 1992, <u>Nucleic Acids Res.</u>, 20, 3252). Similarly, one or more nucleotide substitutions can be introduced in other nucleic acid decoy molecules to inactivate the molecule and such molecules can serve as a negative control.

The average stepwise coupling yields are typically >98% (Wincott et al., 1995 Nucleic Acids Res. 23, 2677-2684). Those of ordinary skill in the art will recognize that the scale of synthesis can be adapted to be larger or smaller than the example described above including but not limited to 96-well format, all that is important is the ratio of chemicals used in the reaction.

Alternatively, the nucleic acid molecules of the present invention can be synthesized separately and joined together post-synthetically, for example, by ligation (Moore et al., 1992, Science 256, 9923; Draper et al., International PCT publication No. WO 93/23569; Shabarova et al., 1991, Nucleic Acids Research 19, 4247; Bellon et al., 1997, Nucleosides & Nucleotides, 16, 951; Bellon et al., 1997, Bioconjugate Chem. 8, 204).

The nucleic acid molecules of the present invention can be modified extensively to enhance stability by modification with nuclease resistant groups, for example, 2'-amino, 2'-C-allyl, 2'-flouro, 2'-O-methyl, 2'-H (for a review see Usman and Cedergren, 1992, TIBS 17, 34; Usman et al., 1994, Nucleic Acids Symp. Ser. 31, 163). Ribozymes can be purified by gel electrophoresis using general methods or can be purified by high pressure liquid chromatography (HPLC; see Wincott et al., supra, the totality of which is hereby incorporated herein by reference) and re-suspended in water.

The sequences of the nucleic acid molecules that are chemically synthesized, useful in this study, are shown in Tables XI, XV, XX, XXI, XXII and XXIII. The nucleic acid sequences listed in Tables IV-XI, XIV-XV and XVIII-XXIII can be formed of ribonucleotides or other nucleotides or non-nucleotides. Such nucleic acid sequences are equivalent to the sequences described specifically in the Tables.

Optimizing Activity of the nucleic acid molecule of the invention

Chemically synthesizing nucleic acid molecules with modifications (base, sugar and/or phosphate) can prevent their degradation by serum ribonucleases, which can increase their potency (see e.g., Eckstein et al., International Publication No. WO 92/07065; Perrault et al., 1990 Nature 344, 565; Pieken et al., 1991, Science 253, 314; Usman and Cedergren, 1992, Trends in Biochem. Sci. 17, 334; Usman et al., International Publication No. WO 93/15187; and Rossi et al., International Publication No. WO 91/03162; Sproat, US Patent No. 5,334,711; Gold et al., US 6,300,074; and Burgin et al., supra; all of which are incorporated by reference herein). All of the above references describe various chemical modifications that can be made to the base, phosphate and/or sugar moieties of the nucleic acid molecules described herein. Modifications that enhance their efficacy in cells, and removal of bases from nucleic acid molecules to shorten oligonucleotide synthesis times and reduce chemical requirements are desired.

There are several examples in the art describing sugar, base and phosphate modifications that can be introduced into nucleic acid molecules with significant enhancement in their nuclease stability and efficacy. For example, oligonucleotides are modified to enhance stability and/or enhance biological activity by modification with nuclease resistant groups, for example, 2'-amino, 2'-C-allyl, 2'-flouro, 2'-O-methyl, 2'-H, nucleotide base modifications (for a review see Usman and Cedergren, 1992, TIBS, 17, 34; Usman et al., 1994, Nucleic Acids Symp. Ser. 31, 163; Burgin et al., 1996, Biochemistry, 35, 14090). Sugar modification of nucleic acid molecules have been extensively described in the art (see Eckstein et al., International Publication PCT No. WO 92/07065; Perrault et al. Nature, 1990, 344, 565-568; Pieken et al. Science, 1991, 253, 314-317; Usman and Cedergren, Trends in Biochem. Sci., 1992, 17, 334-339; Usman et al. International Publication PCT No. WO 93/15187; Sproat, US Patent No. 5,334,711 and Beigelman et al., 1995. J. Biol. Chem., 270, 25702; Beigelman et al., International PCT publication No. WO 97/26270; Beigelman et al., US Patent No. 5,716,824; Usman et al., US patent No. 5,627,053; Woolf et al., International PCT Publication No. WO 98/13526; Thompson et al., USSN 60/082,404 which was filed on April 20, 1998; Karpeisky et al., 1998, Tetrahedron Lett., 39, 1131; Earnshaw and Gait, 1998, Biopolymers (Nucleic Acid Sciences), 48, 39-55; Verma and Eckstein, 1998, Annu. Rev. Biochem., 67, 99-134; and Burlina et al., 1997, Bioorg. Med. Chem., 5, 1999-2010; all of the references are hereby incorporated in their totality by reference herein). Such publications describe general methods and strategies to determine the location of incorporation of sugar, base and/or phosphate modifications and the like into ribozymes without modulating catalysis, and are incorporated by reference herein. In view of such teachings, similar modifications can be used as described herein to modify the nucleic acid molecules of the instant invention.

While chemical modification of oligonucleotide internucleotide linkages with phosphorothioate, phosphorothioate, and/or 5'-methylphosphonate linkages improves stability, excessive modifications can cause some toxicity. Therefore, when designing nucleic acid molecules, the amount of these internucleotide linkages should be minimized. The reduction in the concentration of these linkages should lower toxicity, resulting in increased efficacy and higher specificity of these molecules.

Nucleic acid molecules having chemical modifications that maintain or enhance activity are provided. Such a nucleic acid is also generally more resistant to nucleases than an unmodified nucleic acid. Accordingly, the *in vitro* and/or *in vivo* activity should not be significantly lowered. In cases in which modulation is the goal, therapeutic nucleic acid molecules delivered exogenously should optimally be stable within cells until translation of the target RNA has been modulated long enough to reduce the levels of the undesirable protein. This period of time varies between hours to days depending upon the disease state.

Improvements in the chemical synthesis of RNA and DNA (Wincott et al., 1995 Nucleic Acids Res. 23, 2677; Caruthers et al., 1992, Methods in Enzymology 211,3-19 (incorporated by reference herein)) have expanded the ability to modify nucleic acid molecules by introducing nucleotide modifications to enhance their nuclease stability, as described above.

In one embodiment, nucleic acid molecules of the invention include one or more G-clamp nucleotides. A G-clamp nucleotide is a modified cytosine analog wherein the modifications confer the ability to hydrogen bond both Watson-Crick and Hoogsteen faces of a complementary guanine within a duplex, see for example Lin and Matteucci, 1998, J. Am. Chem. Soc., 120, 8531-8532. A single G-clamp analog substation within an oligonucleotide can result in substantially enhanced helical thermal stability and mismatch discrimination when hybridized to complementary oligonucleotides. The inclusion of such nucleotides in nucleic acid molecules of the invention results in both enhanced affinity and specificity to nucleic acid targets. In another embodiment, nucleic acid molecules of the invention include one or more LNA "locked nucleic acid" nucleotides such as a 2', 4'-C methylene bicyclo nucleotide (see for example Wengel et al., International PCT Publication No. WO 00/66604 and WO 99/14226).

In another embodiment, the invention features conjugates and/or complexes of nucleic acid molecules targeting HBV or HCV. Such conjugates and/or complexes can be used to facilitate delivery of molecules into a biological system, such as a cell. The conjugates and complexes provided by the instant invention can impart therapeutic activity by transferring therapeutic compounds across cellular membranes, altering the pharmacokinetics, and/or modulating the localization of nucleic acid molecules of the invention. The present invention encompasses the design and synthesis of novel conjugates and complexes for the delivery of molecules, including, but not limited to, small molecules, lipids, phospholipids, nucleosides, nucleotides, nucleic acids, antibodies, toxins, negatively charged polymers and other polymers, for example proteins, peptides, hormones, carbohydrates, polyethylene glycols, or polyamines, across cellular membranes. In general, the transporters described are designed to be used either individually or as part of a multi-component system, with or without degradable linkers. These compounds are expected to improve delivery and/or localization of nucleic acid molecules of the invention into a number of cell types originating from different tissues, in the presence or absence of serum (see Sullenger and Cech, US 5,854,038). Conjugates of the molecules described herein can be attached to biologically active molecules via linkers that are biodegradable, such as biodegradable nucleic acid linker molecules.

The term "biodegradable nucleic acid linker molecule" as used herein, refers to a nucleic acid molecule that is designed as a biodegradable linker to connect one molecule to another molecule, for example, a biologically active molecule. The stability of the

biodegradable nucleic acid linker molecule can be modulated by using various combinations of ribonucleotides, deoxyribonucleotides, and chemically modified nucleotides, for example, 2'-O-methyl, 2'-fluoro, 2'-amino, 2'-O-amino, 2'-C-allyl, 2'-O-allyl, and other 2'-modified or base modified nucleotides. The biodegradable nucleic acid linker molecule can be a dimer, trimer, tetramer or longer nucleic acid molecule, for example, an oligonucleotide of about 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, or 20 nucleotides in length, or can comprise a single nucleotide with a phosphorus-based linkage, for example, a phosphoramidate or phosphodiester linkage. The biodegradable nucleic acid linker molecule can also comprise nucleic acid backbone, nucleic acid sugar, or nucleic acid base modifications.

The term "biodegradable" as used herein, refers to degradation in a biological system, for example enzymatic degradation or chemical degradation.

The term "biologically active molecule" as used herein, refers to compounds or molecules that are capable of eliciting or modifying a biological response in a system. Non-limiting examples of biologically active molecules contemplated by the instant invention include therapeutically active molecules such as antibodies, hormones, antivirals, peptides, proteins, chemotherapeutics, small molecules, vitamins, co-factors, nucleosides, nucleotides, oligonucleotides, enzymatic nucleic acids, antisense nucleic acids, triplex forming oligonucleotides, 2,5-A chimeras, siRNA, dsRNA, allozymes, aptamers, decoys and analogs thereof. Biologically active molecules of the invention also include molecules capable of modulating the pharmacokinetics and/or pharmacodynamics of other biologically active molecules, for example, lipids and polymers such as polyamines, polyamides, polyethylene glycol and other polyethers.

The term "phospholipid" as used herein, refers to a hydrophobic molecule comprising at least one phosphorus group. For example, a phospholipid can comprise a phosphorus-containing group and saturated or unsaturated alkyl group, optionally substituted with OH, COOH, oxo, amine, or substituted or unsubstituted aryl groups.

Therapeutic nucleic acid molecules (e.g., decoy nucleic acid molecules) delivered exogenously optimally are stable within cells until reverse trascription of the pregenomic RNA has been modulated long enough to reduce the levels of HBV or HCV DNA. The nucleic acid molecules are resistant to nucleases in order to function as effective intracellular therapeutic agents. Improvements in the chemical synthesis of nucleic acid molecules described in the instant invention and in the art have expanded the ability to modify nucleic acid molecules by introducing nucleotide modifications to enhance their nuclease stability as described above.

In yet another embodiment, nucleic acid molecules having chemical modifications that maintain or enhance enzymatic activity are provided. Such nucleic acids are also generally more resistant to nucleases than unmodified nucleic acids. Thus, in vitro and/or in vivo the activity should not be significantly lowered. As exemplified herein, such nucleic acid molecules are useful in vitro and/or in vivo even if activity over all is reduced 10 fold (Burgin et al., 1996, Biochemistry, 35, 14090).

Use of the nucleic acid-based molecules of the invention will lead to better treatment of the disease progression by affording the possibility of combination therapies (e.g., multiple antisense, nucleic acid decoy, or nucleic acid aptamer molecules targeted to different genes; nucleic acid molecules coupled with known small molecule modulators ors; or intermittent treatment with combinations of molecules (including different motifs) and/or other chemical or biological molecules). The treatment of patients with nucleic acid molecules may also include combinations of different types of nucleic acid molecules.

In another aspect the nucleic acid molecules comprise a 5' and/or a 3'- cap structure.

By "cap structure" is meant chemical modifications, which have been incorporated at either terminus of the oligonucleotide (see, for example, Wincott et al., WO 97/26270, incorporated by reference herein). These terminal modifications protect the nucleic acid molecule from exonuclease degradation, and may help in delivery and/or localization within a cell. The cap may be present at the 5'-terminus (5'-cap) or at the 3'-terminal (3'-cap) or may be present on both termini. In non-limiting examples: the 5'-cap is selected from the group comprising inverted abasic residue (moiety); 4',5'-methylene nucleotide; 1-(beta-Derythrofuranosyl) nucleotide, 4'-thio nucleotide; carbocyclic nucleotide; 1,5-anhydrohexitol nucleotide; L-nucleotides; alpha-nucleotides; modified base nucleotide; phosphorodithioate linkage; threo-pentofuranosyl nucleotide; acyclic 3',4'-seco nucleotide; acyclic 3,4dihydroxybutyl nucleotide; acyclic 3,5-dihydroxypentyl nucleotide, 3'-3'-inverted nucleotide moiety; 3'-3'-inverted abasic moiety; 3'-2'-inverted nucleotide moiety; 3'-2'-inverted abasic moiety; 1,4-butanediol phosphate; 3'-phosphoramidate; hexylphosphate; aminohexyl phosphate; 3'-phosphate; 3'-phosphorothioate; phosphorodithioate; or bridging or nonbridging methylphosphonate moiety (for more details, see Wincott et al., International PCT publication No. WO 97/26270, incorporated by reference herein).

In yet another preferred embodiment, the 3'-cap is selected from a group comprising, 4',5'-methylene nucleotide; 1-(beta-D-erythrofuranosyl) nucleotide; 4'-thio nucleotide, carbocyclic nucleotide; 5'-amino-alkyl phosphate; 1,3-diamino-2-propyl phosphate; 3-aminopropyl phosphate; 6-aminohexyl phosphate; 1,2-aminododecyl phosphate; hydroxypropyl phosphate; 1,5-anhydrohexitol nucleotide; L-nucleotide; alpha-nucleotide; modified base nucleotide; phosphorodithioate; threo-pentofuranosyl nucleotide; acyclic 3',4'-

seco nucleotide; 3,4-dihydroxybutyl nucleotide; 3,5-dihydroxypentyl nucleotide, 5'-5'-inverted nucleotide moiety; 5'-5'-inverted abasic moiety; 5'-phosphoramidate; 5'-phosphorothioate; 1,4-butanediol phosphate; 5'-amino; bridging and/or non-bridging 5'-phosphoramidate, phosphorothioate and/or phosphorodithioate, bridging or non bridging methylphosphonate and 5'-mercapto moieties (for more details see Beaucage and Iyer, 1993, *Tetrahedron* 49, 1925; incorporated by reference herein).

By the term "non-nucleotide" is meant any group or compound which can be incorporated into a nucleic acid chain in the place of one or more nucleotide units, including either sugar and/or phosphate substitutions, and allows the remaining bases to exhibit their enzymatic activity. The group or compound is abasic in that it does not contain a commonly recognized nucleotide base, such as adenosine, guanine, cytosine, uracil or thymine.

The term "alkyl" as used herein refers to a saturated aliphatic hydrocarbon, including straight-chain, branched-chain "isoalkyl", and cyclic alkyl groups. The term "alkyl" also comprises alkoxy, alkyl-thio, alkyl-thio-alkyl, alkoxyalkyl, alkylamino, alkenyl, alkynyl, alkoxy, cycloalkenyl, cycloalkyl, cycloalkylalkyl, heterocycloalkyl, heteroaryl, C1-C6 hydrocarbyl, aryl or substituted aryl groups. Preferably, the alkyl group has 1 to 12 carbons. More preferably it is a lower alkyl of from about 1 to 7 carbons, more preferably about 1 to 4 carbons. The alkyl group can be substituted or unsubstituted. When substituted the substituted group(s) preferably comprise hydroxy, oxy, thio, amino, nitro, cyano, alkoxy, alkyl-thio, alkyl-thio-alkyl, alkoxyalkyl, alkylamino, silyl, alkenyl, alkynyl, alkoxy, cycloalkenyl, cycloalkyl, cycloalkylalkyl, heterocycloalkyl, heteroaryl, C1-C6 hydrocarbyl, aryl or substituted aryl groups. The term "alkyl" also includes alkenyl groups containing at least one carbon-carbon double bond, including straight-chain, branched-chain, and cyclic groups. Preferably, the alkenyl group has about 2 to 12 carbons. More preferably it is a lower alkenyl of from about 2 to 7 carbons, more preferably about 2 to 4 carbons. The alkenyl group can be substituted or unsubstituted. When substituted the substituted group(s) preferably comprise hydroxy, oxy, thio, amino, nitro, cyano, alkoxy, alkyl-thio, alkyl-thioalkyl, alkoxyalkyl, alkylamino, silyl, alkenyl, alkynyl, alkoxy, cycloalkenyl, cycloalkyl, cycloalkylalkyl, heterocycloalkyl, heteroaryl, C1-C6 hydrocarbyl, aryl or substituted aryl groups. The term "alkyl" also includes alkynyl groups containing at least one carbon-carbon triple bond, including straight-chain, branched-chain, and cyclic groups. Preferably, the alkynyl group has about 2 to 12 carbons. More preferably it is a lower alkynyl of from about 2 to 7 carbons, more preferably about 2 to 4 carbons. The alkynyl group can be substituted or unsubstituted. When substituted the substituted group(s) preferably comprise hydroxy, oxy, thio, amino, nitro, cyano, alkoxy, alkyl-thio, alkyl-thio-alkyl, alkoxyalkyl, alkylamino, silyl, alkenyl, alkynyl, alkoxy, cycloalkenyl, cycloalkyl, cycloalkyl, heterocycloalkyl, heteroaryl, C1-C6 hydrocarbyl, aryl or substituted aryl groups. Alkyl groups or moieties of

the invention can also include aryl, alkylaryl, carbocyclic aryl, heterocyclic aryl, amide and ester groups. The preferred substituent(s) of aryl groups are halogen, trihalomethyl, hydroxyl, SH, OH, cyano, alkoxy, alkyl, alkenyl, alkynyl, and amino groups. An "alkylaryl" group refers to an alkyl group (as described above) covalently joined to an aryl group (as described above). Carbocyclic aryl groups are groups wherein the ring atoms on the aromatic ring are all carbon atoms. The carbon atoms are optionally substituted. Heterocyclic aryl groups are groups having from about 1 to 3 heteroatoms as ring atoms in the aromatic ring and the remainder of the ring atoms are carbon atoms. Suitable heteroatoms include oxygen, sulfur, and nitrogen, and include furanyl, thienyl, pyridyl, pyrrolyl, N-lower alkyl pyrrolo, pyrimidyl, pyrazinyl, imidazolyl and the like, all optionally substituted. An "amide" refers to an -C(O)-NH-R, where R is either alkyl, aryl, alkylaryl or hydrogen.

The term "alkoxyalkyl" as used herein refers to an alkyl-O-alkyl ether, for example methoxyethyl or ethoxymethyl.

The term "alkyl-thio-alkyl" as used herein refers to an alkyl-S-alkyl thioether, for example methylthiomethyl or methylthioethyl.

The term "amination" as used herein refers to a process in which an amino group or substituted amine is introduced into an organic molecule.

The term "exocyclic amine protecting moiety" as used herein refers to a nucleobase amino protecting group compatible with oligonucleotide synthesis, for example an acyl or amide group.

The term "alkenyl" as used herein refers to a straight or branched hydrocarbon of a designed number of carbon atoms containing at least one carbon-carbon double bond. Examples of "alkenyl" include vinyl, allyl, and 2-methyl-3-heptene.

The term "alkoxy" as used herein refers to an alkyl group of indicated number of carbon atoms attached to the parent molecular moiety through an oxygen bridge. Examples of alkoxy groups include, for example, methoxy, ethoxy, propoxy and isopropoxy.

The term "alkynyl" as used herein refers to a straight or branched hydrocarbon of a designed number of carbon atoms containing at least one carbon-carbon triple bond. Examples of "alkynyl" include propargyl, propyne, and 3-hexyne.

The term "aryl" as used herein refers to an aromatic hydrocarbon ring system containing at least one aromatic ring. The aromatic ring can optionally be fused or otherwise attached to other aromatic hydrocarbon rings or non-aromatic hydrocarbon rings. Examples

of aryl groups include, for example, phenyl, naphthyl, 1,2,3,4-tetrahydronaphthalene and biphenyl. Preferred examples of aryl groups include phenyl and naphthyl.

The term "cycloalkenyl" as used herein refers to a C3-C8 cyclic hydrocarbon containing at least one carbon-carbon double bond. Examples of cycloalkenyl include cyclopropenyl, cyclobutenyl, cyclopentenyl, cyclopentadiene, cyclohexenyl, 1,3-cyclohexadiene, cycloheptenyl, cycloheptatrienyl, and cyclooctenyl.

The term "cycloalkyl" as used herein refers to a C3-C8 cyclic hydrocarbon. Examples of cycloalkyl include cyclopropyl, cyclobutyl, cyclopentyl, cyclohexyl, cycloheptyl and cycloctyl.

The term "cycloalkylalkyl," as used herein, refers to a C3-C7 cycloalkyl group attached to the parent molecular moiety through an alkyl group, as defined above. Examples of cycloalkylalkyl groups include cyclopropylmethyl and cyclopentylethyl.

The terms "halogen" or "halo" as used herein refers to indicate fluorine, chlorine, bromine, and iodine.

The term "heterocycloalkyl," as used herein refers to a non-aromatic ring system containing at least one heteroatom selected from nitrogen, oxygen, and sulfur. The heterocycloalkyl ring can be optionally fused to or otherwise attached to other heterocycloalkyl rings and/or non-aromatic hydrocarbon rings. Preferred heterocycloalkyl groups have from 3 to 7 members. Examples of heterocycloalkyl groups include, for example, piperazine, morpholine, piperidine, tetrahydrofuran, pyrrolidine, and pyrazole. Preferred heterocycloalkyl groups include piperidinyl, piperazinyl, morpholinyl, and pyrolidinyl.

The term "heteroaryl" as used herein refers to an aromatic ring system containing at least one heteroatom selected from nitrogen, oxygen, and sulfur. The heteroaryl ring can be fused or otherwise attached to one or more heteroaryl rings, aromatic or non-aromatic hydrocarbon rings or heterocycloalkyl rings. Examples of heteroaryl groups include, for example, pyridine, furan, thiophene, 5,6,7,8-tetrahydroisoquinoline and pyrimidine. Preferred examples of heteroaryl groups include thienyl, benzothienyl, pyridyl, quinolyl, pyrazinyl, pyrimidyl, imidazolyl, benzimidazolyl, furanyl, benzofuranyl, thiazolyl, benzothiazolyl, isoxazolyl, oxadiazolyl, isothiazolyl, benzisothiazolyl, triazolyl, tetrazolyl, pyrrolyl, indolyl, pyrazolyl, and benzopyrazolyl.

The term "C1-C6 hydrocarbyl" as used herein refers to straight, branched, or cyclic alkyl groups having 1-6 carbon atoms, optionally containing one or more carbon-carbon double or triple bonds. Examples of hydrocarbyl groups include, for example, methyl, ethyl,

propyl, isopropyl, n-butyl, sec-butyl, tert-butyl, pentyl, 2-pentyl, isopentyl, neopentyl, hexyl, 2-hexyl, 3-hexyl, 3-methylpentyl, vinyl, 2-pentene, cyclopropylmethyl, cyclopropyl, cyclohexylmethyl, cyclohexyl and propargyl. When reference is made herein to C1-C6 hydrocarbyl containing one or two double or triple bonds it is understood that at least two carbons are present in the alkyl for one double or triple bond, and at least four carbons for two double or triple bonds.

The term "nucleotide" as used herein refers to a heterocyclic nitrogenous base in Nglycosidic linkage with a phosphorylated sugar. Nucleotides are recognized in the art to include natural bases (standard), and modified bases well known in the art. Such bases are generally located at the 1' position of a nucleotide sugar moiety. Nucleotides generally comprise a base, sugar and a phosphate group. The nucleotides can be unmodified or modified at the sugar, phosphate and/or base moiety, (also referred to interchangeably as nucleotide analogs, modified nucleotides, non-natural nucleotides, non-standard nucleotides and other; see for example, Usman and McSwiggen, supra; Eckstein et al., International PCT Publication No. WO 92/07065; Usman et al., International PCT Publication No. WO 93/15187; Uhlman & Peyman, supra all are hereby incorporated by reference herein. There are several examples of modified nucleic acid bases known in the art as summarized by Limbach et al., 1994, Nucleic Acids Res. 22, 2183. Some of the non-limiting examples of chemically modified and other natural nucleic acid bases that can be introduced into nucleic acids include, for example, inosine, purine, pyridin-4-one, pyridin-2-one, phenyl, pseudouracil, 2, 4, 6-trimethoxy benzene, 3-methyl uracil, dihydrouridine, naphthyl, aminophenyl, 5-alkylcytidines (e.g., 5-methylcytidine), 5-alkyluridines (e.g., ribothymidine), 5-halouridine (e.g., 5-bromouridine) or 6-azapyrimidines or 6-alkylpyrimidines (e.g. 6methyluridine), propyne, quesosine, 2-thiouridine, 4-thiouridine, wybutosine, wybutoxosine, 4-acetylcytidine, 5-(carboxyhydroxymethyl)uridine, 5'-carboxymethylaminomethyl-2thiouridine. 5-carboxymethylaminomethyluridine, beta-D-galactosylqueosine, 1methyladenosine. 2,2-dimethylguanosine, 1-methylinosine, 3-methylcytidine. 2methyladenosine. 2-methylguanosine, N6-methyladenosine, 7-methylguanosine. 5methoxyaminomethyl-2-thiouridine, 5-methylaminomethyluridine. 5methylcarbonylmethyluridine, 5-methyloxyuridine, 5-methyl-2-thiouridine, 2-methylthio-N6isopentenyladenosine, beta-D-mannosylqueosine, uridine-5-oxyacetic acid, 2-thiocytidine, threonine derivatives and others (Burgin et al., 1996, Biochemistry, 35, 14090; Uhlman & Peyman, supra). By "modified bases" in this aspect is meant nucleotide bases other than adenine, guanine, cytosine and uracil at 1' position or their equivalents; such bases can be used at any position, for example, within the catalytic core of an enzymatic nucleic acid molecule and/or in the substrate-binding regions of the nucleic acid molecule.

The term "nucleoside" as used herein refers to a heterocyclic nitrogenous base in Nglycosidic linkage with a sugar. Nucleosides are recognized in the art to include natural bases (standard), and modified bases well known in the art. Such bases are generally located at the 1' position of a nucleoside sugar moiety. Nucleosides generally comprise a base and sugar group. The nucleosides can be unmodified or modified at the sugar, and/or base moiety (also referred to interchangeably as nucleoside analogs, modified nucleosides, non-natural nucleosides, non-standard nucleosides and other; see for example, Usman and McSwiggen, supra; Eckstein et al., International PCT Publication No. WO 92/07065; Usman et al., International PCT Publication No. WO 93/15187; Uhlman & Peyman, supra all are hereby incorporated by reference herein). There are several examples of modified nucleic acid bases known in the art as summarized by Limbach et al., 1994, Nucleic Acids Res. 22, 2183. Some of the non-limiting examples of chemically modified and other natural nucleic acid bases that can be introduced into nucleic acids include, inosine, purine, pyridin-4-one, pyridin-2-one, phenyl, pseudouracil, 2, 4, 6-trimethoxy benzene, 3-methyl uracil, dihydrouridine, naphthyl, aminophenyl, 5-alkylcytidines (e.g., 5-methylcytidine), 5-alkyluridines (e.g., ribothymidine), 5-halouridine (e.g., 5-bromouridine) or 6-azapyrimidines or 6-alkylpyrimidines (e.g. 6methyluridine), propyne, quesosine, 2-thiouridine, 4-thiouridine, wybutosine, wybutososine, 4-acetylcytidine, 5-(carboxyhydroxymethyl)uridine, 5'-carboxymethylaminomethyl-2thiouridine. 5-carboxymethylaminomethyluridine, beta-D-galactosylqueosine, 1methyladenosine, 1-methylinosine, 2,2-dimethylguanosine, 3-methylcytidine. 2methyladenosine, 2-methylguanosine, N6-methyladenosine. 5-7-methylguanosine, methoxyaminomethyl-2-thiouridine, 5-methylaminomethyluridine, 5methylcarbonylmethyluridine, 5-methyloxyuridine, 5-methyl-2-thiouridine, 2-methylthio-N6isopentenyladenosine, beta-D-mannosylqueosine, uridine-5-oxyacetic acid, 2-thiocytidine, threonine derivatives and others (Burgin et al., 1996, Biochemistry, 35, 14090; Uhlman & Peyman, supra). By "modified bases" in this aspect is meant nucleoside bases other than adenine, guanine, cytosine and uracil at 1' position or their equivalents; such bases can be used at any position, for example, within the catalytic core of an enzymatic nucleic acid molecule and/or in the substrate-binding regions of the nucleic acid molecule.

In one embodiment, the invention features modified nucleic acid molecules with phosphate backbone modifications comprising one or more phosphorothioate, phosphorodithioate, methylphosphonate, morpholino, amidate carbamate, carboxymethyl, acetamidate, polyamide, sulfonate, sulfonamide, sulfamate, formacetal, thioformacetal, and/or alkylsilyl, substitutions. For a review of oligonucleotide backbone modifications see Hunziker and Leumann, 1995, Nucleic Acid Analogues: Synthesis and Properties, in Modern Synthetic Methods, VCH, 331-417, and Mesmaeker et al., 1994, Novel Backbone Replacements for Oligonucleotides, in Carbohydrate Modifications in Antisense Research, ACS, 24-39. These references are hereby incorporated by reference herein.

The term "abasic" as used herein refers to sugar moieties lacking a base or having other chemical groups in place of a base at the 1' position, for example a 3',3'-linked or 5',5'-linked deoxyabasic ribose derivative (for more details see Wincott et al., International PCT publication No. WO 97/26270).

The term "unmodified nucleoside" as used herein refers to one of the bases adenine, cytosine, guanine, thymine, uracil joined to the 1' carbon of β -D-ribo-furanose.

The term "modified nucleoside" as used herein refers to any nucleotide base which contains a modification in the chemical structure of an unmodified nucleotide base, sugar and/or phosphate.

In connection with 2'-modified nucleotides as described for the present invention, by "amino" is meant 2'-NH₂ or 2'-O- NH₂, which can be modified or unmodified. Such modified groups are described, for example, in Eckstein *et al.*, U.S. Patent 5,672,695 and Matulic-Adamic *et al.*, WO 98/28317, respectively, which are both incorporated by reference in their entireties.

Various modifications to nucleic acid (e.g., enzymatic nucleic acid, antisense, decoy, aptamer, siRNA, triplex oligonucleotides, 2,5-A oligonucleotides and other nucleic acid molecules) structure can be made to enhance the utility of these molecules. For example, such modifications can enhance shelf life, half-life in vitro, stability, and ease of introduction of such oligonucleotides to the target site, including e.g., enhancing penetration of cellular membranes and conferring the ability to recognize and bind to targeted cells.

Use of these molecules can lead to better treatment of the disease progression by affording the possibility of combination therapies (e.g., multiple nucleic acid molecules targeted to different genes, nucleic acid molecules coupled with known small molecule inhibitors, or intermittent treatment with combinations of nucleic acid molecules (including different nucleic acid molecule motifs) and/or other chemical or biological molecules). The treatment of patients with nucleic acid molecules can also include combinations of different types of nucleic acid molecules. Therapies can be devised which include a mixture of enzymatic nucleic acid molecules (including different enzymatic nucleic acid molecule motifs), antisense, decoy, aptamer and/or 2-5A chimera molecules to one or more targets to alleviate symptoms of a disease.

Administration of Nucleic Acid Molecules

Methods for the delivery of nucleic acid molecules are described in Akhtar et al., 1992, Trends Cell Bio., 2, 139; Delivery Strategies for Antisense Oligonucleotide Therapeutics, ed. Akhtar, 1995, Maurer et al., 1999, Mol. Membr. Biol., 16, 129-140; Hofland and Huang,

1999, Handb. Exp. Pharmacol., 137, 165-192; and Lee et al., 2000, ACS Symp. Ser., 752, Sullivan et al., PCT WO 94/02595, further describes the general methods for delivery of enzymatic nucleic acid molecules. These protocols can be utilized for the delivery of virtually any nucleic acid molecule. Nucleic acid molecules can be administered to cells by a variety of methods known to those of skill in the art, including, but not restricted to, encapsulation in liposomes, by iontophoresis, or by incorporation into other vehicles, such as hydrogels, cyclodextrins, biodegradable nanocapsules, and bioadhesive microspheres, or by proteinaceous vectors (O'Hare and Normand, International PCT Publication No. WO 00/53722). Alternatively, the nucleic acid/vehicle combination is locally delivered by direct injection or by use of an infusion pump. Direct injection of the nucleic acid molecules of the invention, whether subcutaneous, intramuscular, or intradermal, can take place using standard needle and syringe methodologies, or by needle-free technologies such as those described in Conry et al., 1999, Clin. Cancer Res., 5, 2330-2337 and Barry et al., International PCT Publication No. WO 99/31262. The molecules of the instant invention can be used as pharmaceutical agents. Pharmaceutical agents prevent, modulate the occurrence, or treat (alleviate a symptom to some extent, preferably all of the symptoms) of a disease state in a patient.

Thus, the invention features a pharmaceutical composition comprising one or more nucleic acid(s) of the invention in an acceptable carrier, such as a stabilizer, buffer, and the like. The negatively charged polynucleotides of the invention can be administered (e.g., RNA, DNA or protein) and introduced into a patient by any standard means, with or without stabilizers, buffers, and the like, to form a pharmaceutical composition. When it is desired to use a liposome delivery mechanism, standard protocols for formation of liposomes can be followed. The compositions of the present invention may also be formulated and used as tablets, capsules or elixirs for oral administration, suppositories for rectal administration, sterile solutions, suspensions for injectable administration, and the other compositions known in the art.

The present invention also includes pharmaceutically acceptable formulations of the compounds described. These formulations include salts of the above compounds, e.g., acid addition salts, for example, salts of hydrochloric, hydrobromic, acetic acid, and benzene sulfonic acid.

A pharmacological composition or formulation refers to a composition or formulation in a form suitable for administration, e.g., systemic administration, into a cell or patient, including for example a human. Suitable forms, in part, depend upon the use or the route of entry, for example oral, transdermal, or by injection. Such forms should not prevent the composition or formulation from reaching a target cell (i.e., a cell to which the negatively

charged nucleic acid is desirable for delivery). For example, pharmacological compositions injected into the blood stream should be soluble. Other factors are known in the art, and include considerations such as toxicity and forms that prevent the composition or formulation from exerting its effect.

By "systemic administration" is meant in vivo systemic absorption or accumulation of drugs in the blood stream followed by distribution throughout the entire body. Administration routes which lead to systemic absorption include, without limitation: intravenous, subcutaneous, intraperitoneal, inhalation, oral, intrapulmonary intramuscular. Each of these administration routes expose the desired negatively charged polymers, e.g., nucleic acids, to an accessible diseased tissue. The rate of entry of a drug into the circulation has been shown to be a function of molecular weight or size. The use of a liposome or other drug carrier comprising the compounds of the instant invention can potentially localize the drug, for example, in certain tissue types, such as the tissues of the reticular endothelial system (RES). A liposome formulation that can facilitate the association of drug with the surface of cells, such as, lymphocytes and macrophages is also useful. This approach may provide enhanced delivery of the drug to target cells by taking advantage of the specificity of macrophage and lymphocyte immune recognition of abnormal cells, such as cancer cells.

By "pharmaceutically acceptable formulation" is meant, a composition or formulation that allows for the effective distribution of the nucleic acid molecules of the instant invention in the physical location most suitable for their desired activity. Nonlimiting examples of agents suitable for formulation with the nucleic acid molecules of the instant invention include: P-glycoprotein inhibitors (such as Pluronic P85), which can enhance entry of drugs into the CNS (Jolliet-Riant and Tillement, 1999, Fundam. Clin. Pharmacol., 13, 16-26); biodegradable polymers, such as poly (DL-lactide-coglycolide) microspheres for sustained release delivery after intracerebral implantation (Emerich, DF et al., 1999, Cell Transplant, 8, 47-58) (Alkermes, Inc. Cambridge, MA); and loaded nanoparticles, such as those made of polybutylcyanoacrylate, which can deliver drugs across the blood brain barrier and can alter neuronal uptake mechanisms (Prog Neuropsychopharmacol Biol Psychiatry, 23, 941-949, 1999). Other non-limiting examples of delivery strategies for the nucleic acid molecules of the instant invention include material described in Boado et al., 1998, J. Pharm, Sci., 87, 1308-1315; Tyler et al., 1999, FEBS Lett., 421, 280-284; Pardridge et al., 1995, PNAS USA., 92, 5592-5596; Boado, 1995, Adv. Drug Delivery Rev., 15, 73-107; Aldrian-Herrada et al., 1998, Nucleic Acids Res., 26, 4910-4916; and Tyler et al., 1999, PNAS USA., 96, 7053-7058.

The invention also features the use of the composition comprising surface-modified liposomes containing poly (ethylene glycol) lipids (PEG-modified, or long-circulating

liposomes or stealth liposomes). These formulations offer a method for increasing the accumulation of drugs in target tissues. This class of drug carriers resists opsonization and elimination by the mononuclear phagocytic system (MPS or RES), thereby enabling longer blood circulation times and enhanced tissue exposure for the encapsulated drug (Lasic et al. Chem. Rev. 1995, 95, 2601-2627; Ishiwata et al., Chem. Pharm. Bull. 1995, 43, 1005-1011). Such liposomes have been shown to accumulate selectively in tumors, presumably by extravasation and capture in the neovascularized target tissues (Lasic et al., Science 1995, 267, 1275-1276; Oku et al., 1995, Biochim. Biophys. Acta, 1238, 86-90). The long-circulating liposomes enhance the pharmacokinetics and pharmacodynamics of DNA and RNA, particularly compared to conventional cationic liposomes which are known to accumulate in tissues of the MPS (Liu et al., J. Biol. Chem. 1995, 42, 24864-24870; Choi et al., International PCT Publication No. WO 96/10391; Ansell et al., International PCT Publication No. WO 96/10390; Holland et al., International PCT Publication No. WO 96/10392). Longcirculating liposomes are also likely to protect drugs from nuclease degradation to a greater extent compared to cationic liposomes, based on their ability to avoid accumulation in metabolically aggressive MPS tissues such as the liver and spleen.

The present invention also includes compositions prepared for storage or administration, which include a pharmaceutically effective amount of the desired compounds in a pharmaceutically acceptable carrier or diluent. Acceptable carriers or diluents for therapeutic use are well known in the pharmaceutical art, and are described, for example, in Remington's Pharmaceutical Sciences, Mack Publishing Co. (A.R. Gennaro edit. 1985) hereby incorporated by reference herein. For example, preservatives, stabilizers, dyes and flavoring agents may be provided. These include sodium benzoate, sorbic acid and esters of p-hydroxybenzoic acid. In addition, antioxidants and suspending agents may be used.

A pharmaceutically effective dose is that dose required to prevent, inhibit the occurrence of, or treat (alleviate a symptom to some extent, preferably all of the symptoms) a disease state. The pharmaceutically effective dose depends on the type of disease, the composition used, the route of administration, the type of mammal being treated, the physical characteristics of the specific mammal under consideration, concurrent medication, and other factors that those skilled in the medical arts will recognize. Generally, an amount between 0.1 mg/kg and 100 mg/kg body weight/day of active ingredients is administered dependent upon potency of the negatively charged polymer.

The present invention also includes compositions prepared for storage or administration that include a pharmaceutically effective amount of the desired compounds in a pharmaceutically acceptable carrier or diluent. Acceptable carriers or diluents for therapeutic use are well known in the pharmaceutical art, and are described, for example, in *Remington's*

Pharmaceutical Sciences, Mack Publishing Co. (A.R. Gennaro edit. 1985), hereby incorporated by reference herein. For example, preservatives, stabilizers, dyes and flavoring agents can be provided. These include sodium benzoate, sorbic acid and esters of phydroxybenzoic acid. In addition, antioxidants and suspending agents can be used.

A pharmaceutically effective dose is that dose required to prevent, inhibit the occurrence, or treat (alleviate a symptom to some extent, preferably all of the symptoms) of a disease state. The pharmaceutically effective dose depends on the type of disease, the composition used, the route of administration, the type of mammal being treated, the physical characteristics of the specific mammal under consideration, concurrent medication, and other factors that those skilled in the medical arts will recognize. Generally, an amount between 0.1 mg/kg and 100 mg/kg body weight/day of active ingredients is administered dependent upon potency of the negatively charged polymer.

The nucleic acid molecules of the invention and formulations thereof can be administered orally, topically, parenterally, by inhalation or spray, or rectally in dosage unit formulations containing conventional non-toxic pharmaceutically acceptable carriers, adjuvants and/or vehicles. The term parenteral as used herein includes percutaneous, subcutaneous, intravascular (e.g., intravenous), intramuscular, or intrathecal injection or infusion techniques and the like. In addition, there is provided a pharmaceutical formulation comprising a nucleic acid molecule of the invention and a pharmaceutically acceptable carrier. One or more nucleic acid molecules of the invention can be present in association with one or more non-toxic pharmaceutically acceptable carriers and/or diluents and/or adjuvants, and if desired other active ingredients. The pharmaceutical compositions containing nucleic acid molecules of the invention can be in a form suitable for oral use, for example, as tablets, troches, lozenges, aqueous or oily suspensions, dispersible powders or granules, emulsion, hard or soft capsules, or syrups or elixirs.

Compositions intended for oral use can be prepared according to any method known to the art for the manufacture of pharmaceutical compositions and such compositions can contain one or more such sweetening agents, flavoring agents, coloring agents or preservative agents in order to provide pharmaceutically elegant and palatable preparations. Tablets contain the active ingredient in admixture with non-toxic pharmaceutically acceptable excipients that are suitable for the manufacture of tablets. These excipients can be, for example, inert diluents; such as calcium carbonate, sodium carbonate, lactose, calcium phosphate or sodium phosphate; granulating and disintegrating agents, for example, corn starch, or alginic acid; binding agents, for example starch, gelatin or acacia; and lubricating agents, for example magnesium stearate, stearic acid or talc. The tablets can be uncoated or they can be coated by known techniques. In some cases such coatings can be prepared by

known techniques to delay disintegration and absorption in the gastrointestinal tract and thereby provide a sustained action over a longer period. For example, a time delay material such as glyceryl monosterate or glyceryl distearate can be employed.

Formulations for oral use can also be presented as hard gelatin capsules wherein the active ingredient is mixed with an inert solid diluent, for example, calcium carbonate, calcium phosphate or kaolin, or as soft gelatin capsules wherein the active ingredient is mixed with water or an oil medium, for example peanut oil, liquid paraffin or olive oil.

Aqueous suspensions contain the active materials in admixture with excipients suitable for the manufacture of aqueous suspensions. Such excipients are suspending agents, for example sodium carboxymethylcellulose, methylcellulose, hydropropyl-methylcellulose, sodium alginate, polyvinylpyrrolidone, gum tragacanth and gum acacia; dispersing or wetting agents can be a naturally-occurring phosphatide, for example, lecithin, or condensation products of an alkylene oxide with fatty acids, for example polyoxyethylene stearate, or condensation products of ethylene oxide with long chain aliphatic alcohols, for example heptadecaethyleneoxycetanol, or condensation products of ethylene oxide with partial esters derived from fatty acids and a hexitol such as polyoxyethylene sorbitol monooleate, or condensation products of ethylene oxide with partial esters derived from fatty acids and hexitol anhydrides, for example polyethylene sorbitan monooleate. The aqueous suspensions can also contain one or more preservatives, for example ethyl, or n-propyl phydroxybenzoate, one or more coloring agents, one or more flavoring agents, and one or more sweetening agents, such as sucrose or saccharin.

Oily suspensions can be formulated by suspending the active ingredients in a vegetable oil, for example arachis oil, olive oil, sesame oil or coconut oil, or in a mineral oil such as liquid paraffin. The oily suspensions can contain a thickening agent, for example beeswax, hard paraffin or cetyl alcohol. Sweetening agents and flavoring agents can be added to provide palatable oral preparations. These compositions can be preserved by the addition of an anti-oxidant such as ascorbic acid.

Dispersible powders and granules suitable for preparation of an aqueous suspension by the addition of water provide the active ingredient in admixture with a dispersing or wetting agent, suspending agent and one or more preservatives. Suitable dispersing or wetting agents or suspending agents are exemplified by those already mentioned above. Additional excipients, for example sweetening, flavoring and coloring agents, can also be present.

Pharmaceutical compositions of the invention can also be in the form of oil-in-water emulsions. The oily phase can be a vegetable oil or a mineral oil or mixtures of these. Suitable emulsifying agents can be naturally-occurring gums, for example gum acacia or gum

tragacanth, naturally-occurring phosphatides, for example soy bean, lecithin, and esters or partial esters derived from fatty acids and hexitol, anhydrides, for example sorbitan monooleate, and condensation products of the said partial esters with ethylene oxide, for example polyoxyethylene sorbitan monooleate. The emulsions can also contain sweetening and flavoring agents.

Syrups and elixirs can be formulated with sweetening agents, for example glycerol, propylene glycol, sorbitol, glucose or sucrose. Such formulations can also contain a demulcent, a preservative and flavoring and coloring agents. The pharmaceutical compositions can be in the form of a sterile injectable aqueous or oleaginous suspension. This suspension can be formulated according to the known art using those suitable dispersing or wetting agents and suspending agents that have been mentioned above. The sterile injectable preparation can also be a sterile injectable solution or suspension in a non-toxic parentally acceptable diluent or solvent, for example as a solution in 1,3-butanediol. Among the acceptable vehicles and solvents that can be employed are water, Ringer's solution and isotonic sodium chloride solution. In addition, sterile, fixed oils are conventionally employed as a solvent or suspending medium. For this purpose, any bland fixed oil can be employed including synthetic mono-or diglycerides. In addition, fatty acids such as oleic acid find use in the preparation of injectables.

The nucleic acid molecules of the invention can also be administered in the form of suppositories, e.g., for rectal administration of the drug. These compositions can be prepared by mixing the drug with a suitable non-irritating excipient that is solid at ordinary temperatures but liquid at the rectal temperature and will therefore melt in the rectum to release the drug. Such materials include cocoa butter and polyethylene glycols.

Nucleic acid molecules of the invention can be administered parenterally in a sterile medium. The drug, depending on the vehicle and concentration used, can either be suspended or dissolved in the vehicle. Advantageously, adjuvants such as local anesthetics, preservatives and buffering agents can be dissolved in the vehicle.

Dosage levels of the order of from about 0.1 mg to about 140 mg per kilogram of body weight per day are useful in the treatment of the above-indicated conditions (about 0.5 mg to about 7 g per patient per day). The amount of active ingredient that can be combined with the carrier materials to produce a single dosage form varies depending upon the host treated and the particular mode of administration. Dosage unit forms generally contain between from about 1 mg to about 500 mg of an active ingredient.

It is understood that the specific dose level for any particular patient depends upon a variety of factors including the activity of the specific compound employed, the age, body

weight, general health, sex, diet, time of administration, route of administration, and rate of excretion, drug combination and the severity of the particular disease undergoing therapy.

For administration to non-human animals, the composition can also be added to the animal feed or drinking water. It can be convenient to formulate the animal feed and drinking water compositions so that the animal takes in a therapeutically appropriate quantity of the composition along with its diet. It can also be convenient to present the composition as a premix for addition to the feed or drinking water.

The nucleic acid molecules of the present invention may also be administered to a patient in combination with other therapeutic compounds to increase the overall therapeutic effect. The use of multiple compounds to treat an indication may increase the beneficial effects while reducing the presence of side effects.

In one embodiment, the invention compositions suitable for administering nucleic acid molecules of the invention to specific cell types, such as hepatocytes. For example, the asialoglycoprotein receptor (ASGPr) (Wu and Wu, 1987, J. Biol. Chem. 262, 4429-4432) is unique to hepatocytes and binds branched galactose-terminal glycoproteins, such as asialoorosomucoid (ASOR). Binding of such glycoproteins or synthetic glycoconjugates to the receptor takes place with an affinity that strongly depends on the degree of branching of the oligosaccharide chain, for example, triatennary structures are bound with greater affinity than biatenarry or monoatennary chains (Baenziger and Fiete, 1980, Cell, 22, 611-620; Connolly et al., 1982, J. Biol. Chem., 257, 939-945). Lee and Lee, 1987, Glycoconjugate J., 4, 317-328, obtained this high specificity through the use of N-acetyl-D-galactosamine as the carbohydrate moiety, which has higher affinity for the receptor, compared to galactose. This "clustering effect" has also been described for the binding and uptake of mannosylterminating glycoproteins or glycoconjugates (Ponpipom et al., 1981, J. Med. Chem., 24, 1388-1395). The use of galactose and galactosamine based conjugates to transport exogenous compounds across cell membranes can provide a targeted delivery approach to the treatment of liver disease such as HBV infection or hepatocellular carcinoma. The use of bioconjugates can also provide a reduction in the required dose of therapeutic compounds required for treatment. Furthermore, therapeutic bioavialability, pharmacodynamics, and pharmacokinetic parameters can be modulated through the use of nucleic acid bioconjugates of the invention.

Alternatively, certain of the nucleic acid molecules of the instant invention can be expressed within cells from eukaryotic promoters (e.g., Izant and Weintraub, 1985, Science, 229, 345; McGarry and Lindquist, 1986, Proc. Natl. Acad. Sci., USA 83, 399; Scanlon et al., 1991, Proc. Natl. Acad. Sci. USA, 88, 10591-5; Kashani-Sabet et al., 1992, Antisense Res. Dev., 2, 3-15; Dropulic et al., 1992, J. Virol., 66, 1432-41; Weerasinghe et al., 1991, J. Virol., 65, 5531-4; Ojwang et al., 1992, Proc. Natl. Acad. Sci. USA, 89, 10802-6; Chen et

al., 1992, Nucleic Acids Res., 20, 4581-9; Sarver et al., 1990 Science, 247, 1222-1225; Thompson et al., 1995, Nucleic Acids Res., 23, 2259; Good et al., 1997, Gene Therapy, 4, 45; all of these references are hereby incorporated in their totalities by reference herein). Those skilled in the art realize that any nucleic acid can be expressed in eukaryotic cells from the appropriate DNA/RNA vector. The activity of such nucleic acids can be augmented by their release from the primary transcript by a ribozyme (Draper et al., PCT WO 93/23569, and Sullivan et al., PCT WO 94/02595; Ohkawa et al., 1992, Nucleic Acids Symp. Ser., 27, 15-6; Taira et al., 1991, Nucleic Acids Res., 19, 5125-30; Ventura et al., 1993, Nucleic Acids Res., 21, 3249-55; Chowrira et al., 1994, J. Biol. Chem., 269, 25856; all of these references are hereby incorporated in their totality by reference herein).

In another aspect of the invention, RNA molecules of the present invention are preferably expressed from transcription units (see, for example, Couture et al., 1996, TIG., 12, 510) inserted into DNA or RNA vectors. The recombinant vectors are preferably DNA plasmids or viral vectors. Ribozyme expressing viral vectors could be constructed based on, but not limited to, adeno-associated virus, retrovirus, adenovirus, or alphavirus. Preferably, the recombinant vectors capable of expressing the nucleic acid molecules are delivered as described above, and persist in target cells. Alternatively, viral vectors may be used that provide for transient expression of nucleic acid molecules. Such vectors might be repeatedly administered as necessary. Once expressed, the nucleic acid molecule binds to the target mRNA. Delivery of nucleic acid molecule expressing vectors could be systemic, such as by intravenous or intra-muscular administration, by administration to target cells ex-planted from the patient followed by reintroduction into the patient, or by any other means that would allow for introduction into the desired target cell (for a review see Couture et al., 1996, TIG., 12, 510).

In one aspect, the invention features an expression vector comprising a nucleic acid sequence encoding at least one of the nucleic acid molecules of the instant invention is disclosed. The nucleic acid sequence encoding the nucleic acid molecule of the instant invention is operable linked in a manner which allows expression of that nucleic acid molecule.

In another aspect the invention features an expression vector comprising: a) a transcription initiation region (e.g., eukaryotic pol I, II or III initiation region); b) a transcription termination region (e.g., eukaryotic pol I, II or III termination region); c) a nucleic acid sequence encoding at least one of the nucleic acid catalyst of the instant invention; and wherein said sequence is operably linked to said initiation region and said termination region, in a manner which allows expression and/or delivery of said nucleic acid molecule. The vector may optionally include an open reading frame (ORF) for a protein

operably linked on the 5' side or the 3'-side of the sequence encoding the nucleic acid catalyst of the invention; and/or an intron (intervening sequences).

Transcription of the nucleic acid molecule sequences are driven from a promoter for eukaryotic RNA polymerase I (pol I), RNA polymerase II (pol II), or RNA polymerase III (pol III). Transcripts from pol II or pol III promoters will be expressed at high levels in all cells; the levels of a given pol II promoter in a given cell type will depend on the nature of the gene regulatory sequences (enhancers, silencers, etc.) present nearby. Prokaryotic RNA polymerase promoters are also used, providing that the prokaryotic RNA polymerase enzyme is expressed in the appropriate cells (Elroy-Stein and Moss, 1990, Proc. Natl. Acad. Sci. US A, 87, 6743-7; Gao and Huang 1993, Nucleic Acids Res., 21, 2867-72; Lieber et al., 1993, Methods Enzymol., 217, 47-66; Zhou et al., 1990, Mol. Cell. Biol., 10, 4529-37). All of these references are incorporated by reference herein. Several investigators have demonstrated that nucleic acid molecules, such as ribozymes expressed from such promoters can function in mammalian cells (e.g. Kashani-Sabet et al., 1992, Antisense Res. Dev., 2, 3-15; Ojwang et al., 1992, Proc. Natl. Acad. Sci. USA, 89, 10802-6; Chen et al., 1992, Nucleic Acids Res., 20, 4581-9; Yu et al., 1993, Proc. Natl. Acad. Sci. U S A, 90, 6340-4; L'Huillier et al., 1992, EMBO J., 11, 4411-8; Lisziewicz et al., 1993, Proc. Natl. Acad. Sci. U. S. A, 90, 8000-4; Thompson et al., 1995, Nucleic Acids Res., 23, 2259; Sullenger & Cech, 1993, Science, 262, 1566). More specifically, transcription units such as the ones derived from genes encoding U6 small nuclear (snRNA), transfer RNA (tRNA) and adenovirus VA RNA are useful in generating high concentrations of desired RNA molecules such as ribozymes in cells (Thompson et al., supra; Couture and Stinchcomb, 1996, supra; Noonberg et al., 1994, Nucleic Acid Res., 22, 2830; Noonberg et al., US Patent No. 5,624,803; Good et al., 1997, Gene Ther., 4, 45; Beigelman et al., International PCT Publication No. WO 96/18736; all of these publications are incorporated by reference herein). The above ribozyme transcription units can be incorporated into a variety of vectors for introduction into mammalian cells, including but not restricted to, plasmid DNA vectors, viral DNA vectors (such as adenovirus or adeno-associated virus vectors), or viral RNA vectors (such as retroviral or alphavirus vectors) (for a review see Couture and Stinchcomb, 1996, supra).

In yet another aspect, the invention features an expression vector comprising nucleic acid sequence encoding at least one of the nucleic acid molecules of the invention, in a manner that allows expression of that nucleic acid molecule. The expression vector comprises in one embodiment; a) a transcription initiation region; b) a transcription termination region; c) a nucleic acid sequence encoding at least one said nucleic acid molecule; and wherein said sequence is operably linked to said initiation region and said termination region, in a manner which allows expression and/or delivery of said nucleic acid molecule. In another embodiment, the expression vector comprises: a) a transcription initiation region; b) a

transcription termination region; c) an open reading frame; d) a nucleic acid sequence encoding at least one said nucleic acid molecule, wherein said sequence is operably linked to the 3'-end of said open reading frame; and wherein said sequence is operably linked to said initiation region, said open reading frame and said termination region, in a manner which allows expression and/or delivery of said nucleic acid molecule. In yet another embodiment, the expression vector comprises: a) a transcription initiation region; b) a transcription termination region; c) an intron; d) a nucleic acid sequence encoding at least one said nucleic acid molecule; and wherein said sequence is operably linked to said initiation region, said intron and said termination region, in a manner which allows expression and/or delivery of said nucleic acid molecule. In another embodiment, the expression vector comprises: a) a transcription initiation region; b) a transcription termination region; c) an intron; d) an open reading frame; e) a nucleic acid sequence encoding at least one said nucleic acid molecule, wherein said sequence is operably linked to the 3'-end of said open reading frame; and wherein said sequence is operably linked to said initiation region, said intron, said open reading frame and said termination region, in a manner which allows expression and/or delivery of said nucleic acid molecule.

Interferons

Type I interferons (IFN) are a class of natural cytokines that includes a family of greater than 25 IFN-\alpha (Pesta, 1986, Methods Enzymol. 119, 3-14) as well as IFN-\beta, and IFN-\alpha. Although evolutionarily derived from the same gene (Diaz et al., 1994, Genomics 22, 540-552), there are many differences in the primary sequence of these molecules, implying an evolutionary divergence in biologic activity. All type I IFN share a common pattern of biologic effects that begin with binding of the IFN to the cell surface receptor (Pfeffer & Strulovici, 1992, Transmembrane secondary messengers for IFN-α/β. In: Interferon. Principles and Medical Applications., S. Baron, D.H. Coopenhaver, F. Dianzani, W.R. Fleischmann Jr., T.K. Hughes Jr., G.R. Kimpel, D.W. Niesel, G.J. Stanton, and S.K. Tyring, eds. 151-160). Binding is followed by activation of tyrosine kinases, including the Janus tyrosine kinases and the STAT proteins, which leads to the production of several IFNstimulated gene products (Johnson et al., 1994, Sci. Am. 270, 68-75). The IFN-stimulated gene products are responsible for the pleotropic biologic effects of type I IFN, including antiviral, antiproliferative, and immunomodulatory effects, cytokine induction, and HLA class I and class II regulation (Pestka et al., 1987, Annu. Rev. Biochem 56, 727). Examples of IFN-stimulated gene products include 2-5-oligoadenylate synthetase (2-5 OAS), β_2 microglobulin, neopterin, p68 kinases, and the Mx protein (Chebath & Revel, 1992, The 2-5 A system: 2-5 A synthetase, isospecies and functions. In: Interferon. Principles and Medical Applications. S. Baron, D.H. Coopenhaver, F. Dianzani, W.R. Jr. Fleischmann, T.K. Jr. Hughes, G.R. Kimpel, D.W. Niesel, G.J. Stanton, and S.K. Tyring, eds., pp. 225-236;

Samuel, 1992, The RNA-dependent P1/eIF-2α protein kinase. In: Interferon. Principles and Medical Applications. S. Baron, D.H. Coopenhaver, F. Dianzani, W.R. Fleischmann Jr., T.K. Hughes Jr., G.R. Kimpel, D.W. Niesel, G.H. Stanton, and S.K. Tyring, eds. 237-250; Horisberger, 1992, MX protein: function and Mechanism of Action. In: Interferon. Principles and Medical Applications. S. Baron, D.H. Coopenhaver, F. Dianzani, W.R. Fleischmann Jr., T.K. Hughes Jr., G.R. Kimpel, D.W. Niesel, G.H. Stanton, and S.K. Tyring, eds. 215-224). Although all type I IFN have similar biologic effects, not all the activities are shared by each type I IFN, and, in many cases, the extent of activity varies quite substantially for each IFN subtype (Fish et al, 1989, J. Interferon Res. 9, 97-114; Ozes et al., 1992, J. Interferon Res. 12, 55-59). More specifically, investigations into the properties of different subtypes of IFN-α and molecular hybrids of IFN-α have shown differences in pharmacologic properties (Rubinstein, 1987, J. Interferon Res. 7, 545-551). These pharmacologic differences can arise from as few as three amino acid residue changes (Lee et al., 1982, Cancer Res. 42, 1312-1316).

Eighty-five to 166 amino acids are conserved in the known IFN- α subtypes. Excluding the IFN- α pseudogenes, there are approximately 25 known distinct IFN- α subtypes. Pairwise comparisons of these nonallelic subtypes show primary sequence differences ranging from 2% to 23%. In addition to the naturally occurring IFNs, a non-natural recombinant type I interferon known as consensus interferon (CIFN) has been synthesized as a therapeutic compound (Tong *et al.*, 1997, *Hepatology* 26, 747-754).

Interferon is currently in use for at least 12 different indications including infectious and autoimmune diseases and cancer (Borden, 1992, N. Engl. J. Med. 326, 1491-1492). For autoimmune diseases IFN has been utilized for treatment of rheumatoid arthritis, multiple sclerosis, and Crohn's disease. For treatment of cancer IFN has been used alone or in combination with a number of different compounds. Specific types of cancers for which IFN has been used include squamous cell carcinomas, melanomas, hypernephromas, hemangiomas, hairy cell leukemia, and Kaposi's sarcoma. In the treatment of infectious diseases, IFNs increase the phagocytic activity of macrophages and cytotoxicity of lymphocytes and inhibits the propagation of cellular pathogens. Specific indications for which IFN has been used as treatment include: hepatitis B, human papillomavirus types 6 and 11 (i.e. genital warts) (Leventhal et al., 1991, N Engl J Med 325, 613-617), chronic granulomatous disease, and hepatitis C virus.

Numerous well controlled clinical trials using IFN-alpha in the treatment of chronic HCV infection have demonstrated that treatment three times a week results in lowering of serum ALT values in approximately 50% (range 40% to 70%) of patients by the end of 6 months of therapy (Davis *et al.*, 1989, The new England Journal of Medicine 321, 1501-

1506; Marcellin et al., 1991, Hepatology 13, 393-397; Tong et al., 1997, Hepatology 26, 747-754; Tong et al., Hepatology 26, 1640-1645). However, following cessation of interferon treatment, approximately 50% of the responding patients relapsed, resulting in a "durable" response rate as assessed by normalization of serum ALT concentrations of approximately 20 to 25%. In addition, studies that have examined six months of type 1 interferon therapy using changes in HCV RNA values as a clinical endpoint have demonstrated that up to 35% of patients will have a loss of HCV RNA by the end of therapy (Tong et al., 1997, supra). However, as with the ALT endpoint, about 50% of the patients relapse six months following cessation of therapy resulting in a durable virologic response of only 12% (23). Studies that have examined 48 weeks of therapy have demonstrated that the sustained virological response is up to 25%.

Pegylated interferons, ie. interferons conjugated with polyethylene glycol (PEG), have demonstrated improved characteristics over interferon. Advantages incurred by PEG conjugation can include an improved pharmacokinetic profile compared to interferons lacking PEG, thus imparting more convenient dosing regimes, improved tolerance, and improved antiviral efficacy. Such improvements have been demonstrated in clinical studies of both polyethylene glycol interferon alfa-2a (PEGASYS, Roche) and polyethylene glycol interferon alfa-2b (VIRAFERON PEG, PEG-INTRON, Enzon/Schering Plough).

Enzymatic nucleic acid molecules in combination with interferons and polyethylene glycol interferons have the potential to improve the effectiveness of treatment of HCV or any of the other indications discussed above. Enzymatic nucleic acid molecules targeting RNAs associated with diseases such as infectious diseases, autoimmune diseases, and cancer, can be used individually or in combination with other therapies such as interferons and polyethylene glycol interferons and to achieve enhanced efficacy.

Examples:

The following are non-limiting examples showing the selection, isolation, synthesis and activity of nucleic acids of the instant invention. These examples demonstrate the selection and design of Antisense, Hammerhead, DNAzyme, NCH, Amberzyme, Zinzyme or G-Cleaver ribozyme molecules and binding/cleavage sites within HBV and HCV RNA. The following examples also demonstrate the selection and design of nucleic acid decoy molecules that target HBV reverse transcriptase. The following examples also demonstrate the use of enzymatic nucleic acid molecules that cleave HCV RNA. The methods described herein represent a scheme by which nucleic acid molecules can be derived that cleave other RNA targets required for HCV replication.

Example 1: Identification of Potential Target Sites in Human HBV RNA

The sequence of human HBV was screened for accessible sites using a computer-folding algorithm. Regions of the RNA that did not form secondary folding structures and contained potential ribozyme and/or antisense binding/cleavage sites were identified. The sequences of these cleavage sites are shown in Tables IV - XI.

Example 2: Selection of Enzymatic Nucleic Acid Cleavage Sites in Human HBV RNA

Ribozyme target sites were chosen by analyzing sequences of Human HBV (accession number: AF100308.1) and prioritizing the sites on the basis of folding. Ribozymes were designed that could bind each target and were individually analyzed by computer folding (Christoffersen et al., 1994 J. Mol. Struc. Theochem, 311, 273; Jaeger et al., 1989, Proc. Natl. Acad. Sci. USA, 86, 7706) to assess whether the ribozyme sequences fold into the appropriate secondary structure. Those ribozymes with unfavorable intramolecular interactions between the binding arms and the catalytic core were eliminated from consideration. As noted herein, varying binding arm lengths can be chosen to optimize activity. Generally, at least 5 bases on each arm are able to bind to, or otherwise interact with, the target RNA.

Example 3: Chemical Synthesis and Purification of Ribozymes and Antisense for Efficient Cleavage and/or blocking of HBV RNA

Ribozymes and antisense constructs were designed to anneal to various sites in the RNA message. The binding arms of the ribozymes are complementary to the target site sequences described above, while the antisense constructs are fully complementary to the target site sequences described above. The ribozymes and antisense constructs were chemically synthesized. The method of synthesis used followed the procedure for normal RNA synthesis as described above and in Usman et al., (1987 J. Am. Chem. Soc., 109, 7845), Scaringe et al., (1990 Nucleic Acids Res., 18, 5433) and Wincott et al., supra, and made use of common nucleic acid protecting and coupling groups, such as dimethoxytrityl at the 5'-end, and phosphoramidites at the 3'-end. The average stepwise coupling yields were typically >98%.

Ribozymes and antisense constructs were also synthesized from DNA templates using bacteriophage T7 RNA polymerase (Milligan and Uhlenbeck, 1989, *Methods Enzymol*. 180, 51). Ribozymes and antisense constructs were purified by gel electrophoresis using general methods or were purified by high pressure liquid chromatography (HPLC; see Wincott et al., *supra*; the totality of which is hereby incorporated herein by reference) and were resuspended in water. The sequences of the chemically synthesized ribozymes used in this study are shown below in **Table XI**.

Example 4: Ribozyme Cleavage of HBV RNA Target in vitro

Ribozymes targeted to the human HBV RNA are designed and synthesized as described above. These ribozymes can be tested for cleavage activity *in vitro*, for example using the following procedure. The target sequences and the nucleotide location within the HBV RNA are given in **Tables IV-XI**.

Cleavage Reactions: Full-length or partially full-length, internally-labeled target RNA for ribozyme cleavage assay is prepared by in vitro transcription in the presence of $[\alpha^{-32}p]$ CTP, passed over a G 50 Sephadex® column by spin chromatography and used as substrate RNA without further purification. Alternately, substrates are 5'-32P-end labeled using T4 polynucleotide kinase enzyme. Assays are performed by pre-warming a 2X concentration of purified ribozyme in ribozyme cleavage buffer (50 mM Tris-HCl, pH 7.5 at 37°C, 10 mM MgCl₂) and the cleavage reaction was initiated by adding the 2X ribozyme mix to an equal volume of substrate RNA (maximum of 1-5 nM) that was also pre-warmed in cleavage buffer. As an initial screen, assays are carried out for 1 hour at 37°C using a final concentration of either 40 nM or 1 mM ribozyme, i.e., ribozyme excess. The reaction is quenched by the addition of an equal volume of 95% formamide, 20 mM EDTA, 0.05% bromophenol blue and 0.05% xylene cyanol after which the sample is heated to 95°C for 2 minutes, quick chilled and loaded onto a denaturing polyacrylamide gel. Substrate RNA and the specific RNA cleavage products generated by ribozyme cleavage are visualized on an autoradiograph of the gel. The percentage of cleavage is determined by Phosphor Imager® quantitation of bands representing the intact substrate and the cleavage products.

Example 5: Transfection of HepG2 Cells with psHBV-1 and Ribozymes

The human hepatocellular carcinoma cell line Hep G2 was grown in Dulbecco's modified Eagle media supplemented with 10% fetal calf serum, 2 mM glutamine, 0.1 mM nonessential amino acids, 1 mM sodium pyruvate, 25 mM Hepes, 100 units penicillin, and 100 µg/ml streptomycin. To generate a replication competent cDNA, prior to transfection the HBV genomic sequences are excised from the bacterial plasmid sequence contained in the psHBV-1 vector (Those skilled in the art understand that other methods may be used to generate a replication competent cDNA). This was done with an EcoRI and Hind III restriction digest. Following completion of the digest, a ligation was performed under dilute conditions (20 µg/ml) to favor intermolecular ligation. The total ligation mixture was then concentrated using Qiagen spin columns.

Secreted alkaline phosphatase (SEAP) was used to normalize the HBsAg levels to control for transfection variability. The pSEAP2-TK control vector was constructed by ligating a Bgl II-Hind III fragment of the pRL-TK vector (Promega), containing the herpes

simplex virus thymidine kinase promoter region, into Bgl II/Hind III digested pSEAP2-Basic (Clontech). Hep G2 cells were plated (3 x 10^4 cells/well) in 96-well microtiter plates and incubated overnight. A lipid/DNA/ribozyme complex was formed containing (at final concentrations) cationic lipid (15 μ g/ml), prepared psHBV-1 (4.5 μ g/ml), pSEAP2-TK (0.5 μ g/ml), and ribozyme (100 μ M). Following a 15 min. incubation at 37° C, the complexes were added to the plated Hep G2 cells. Media was removed from the cells 96 hr. post-transfection for HBsAg and SEAP analysis.

Transfection of the human hepatocellular carcinoma cell line, Hep G2, with replication competent HBV DNA results in the expression of HBV proteins and the production of virions. To investigate the potential use of ribozymes for the treatment of chronic HBV infection, a series of ribozymes that target the 3' terminus of the HBV genome have been synthesized. Ribozymes targeting this region have the potential to cleave all four major HBV RNA transcripts as well as the potential to block the production of HBV DNA by cleavage of the pregenomic RNA. To test the efficacy of these HBV ribozymes, they were co-transfected with HBV genomic DNA into Hep G2 cells, and the subsequent levels of secreted HBV surface antigen (HBsAg) were analyzed by ELISA. To control for variability in transfection efficiency, a control vector which expresses secreted alkaline phosphatase (SEAP), was also co-transfected. The efficacy of the HBV ribozymes was determined by comparing the ratio of HBsAg:SEAP and/or HBeAg:SEAP to that of a scrambled attenuated control (SAC) ribozyme. Twenty-five ribozymes (RPI18341, RPI18356, RPI18363, RPI18364, RPI18365, RPI18366, RPI18367, RPI18368, RPI18369, RPI18370, RPI18371, RPI18372, RPI18373, RPI18374, RPI18303, RPI18405, RPI18406, RPI18407, RPI18408, RPI18409, RPI18410, RPI18411, RPI18418, RPI18419, and RPI18422) have been identified which cause a reduction in the levels of HBsAg and/or HBeAg as compared to the corresponding SAC ribozyme. In addition, loop variant anti-HBV ribozymes targeting site 273 were tested using this system, the results of this study are summarized in Figure 10. As indicated in the figure, the ribozymes tested demonstrate significant reduction in HepG2 HBsAg levels as compared to a scrambled attenuated core ribozyme control, with RPI 22650 and RPI 22649 showing the greatest decrease in HBsAg levels.

Example 6: Analysis of HBsAg and SEAP Levels Following Ribozyme Treatment

Immulon 4 (Dynax) microtiter wells were coated overnight at 4° C with anti-HBsAg Mab (Biostride B88-95-31ad,ay) at 1 μg/ml in Carbonate Buffer (Na2CO3 15 mM, NaHCO3 35 mM, pH 9.5). The wells were then washed 4x with PBST (PBS, 0.05% Tween® 20) and blocked for 1 hr at 37° C with PBST, 1% BSA. Following washing as above, the wells were dried at 37° C for 30 min. Biotinylated goat ant-HBsAg (Accurate YVS1807) was diluted 1:1000 in PBST and incubated in the wells for 1 hr. at 37° C. The wells were washed 4x with

PBST. Streptavidin/Alkaline Phosphatase Conjugate (Pierce 21324) was diluted to 250 ng/ml in PBST, and incubated in the wells for 1 hr. at 37° C. After washing as above, p-nitrophenyl phosphate substrate (Pierce 37620) was added to the wells, which were then incubated for 1 hr. at 37° C. The optical density at 405 nm was then determined. SEAP levels were assayed using the Great EscAPe® Detection Kit (Clontech K2041-1), as per the manufacturers instructions.

Example 7: X-gene Reporter Assay

The effect of ribozyme treatment on the level of transactivation of a SV40 promoter driven firefly luciferase gene by the HBV X-protein was analyzed in transfected Hep G2 cells. As a control for variability in transfection efficiency, a Renilla luciferase reporter driven by the TK promoter, which is not transactivated by the X protein, was used. Hep G2 cells were plated (3 x 10⁴ cells/well) in 96-well microtiter plates and incubated overnight. A lipid/DNA/ribozyme complex was formed containing (at final concentrations) cationic lipid (2.4 μg/ml), the X-gene vector pSBDR(2.5 μg/ml), the firefly reporter pSV40HCVluc (0.5 μg/ml), the Renilla luciferase control vector pRL-TK (0.5 μg/ml), and ribozyme (100 μM). Following a 15 min. incubation at 37° C, the complexes were added to the plated Hep G2 cells. Levels of firefly and Renilla luciferase were analyzed 48 hr. post transfection, using Promega's Dual-Luciferase Assay System.

The HBV X protein is a transactivator of a number of viral and cellular genes. Ribozymes which target the X region were tested for their ability to cause a reduction in X protein transactivation of a firefly luciferase gene driven by the SV40 promoter in transfected Hep G2 cells. As a control for transfection variability, a vector containing the Renilla luciferase gene driven by the TK promotor, which is not activated by the X protein, was included in the co-transfections. The efficacy of the HBV ribozymes was determined by comparing the ratio of firefly luciferase: Renilla luciferase to that of a scrambled attenuated control (SAC) ribozyme. Eleven ribozymes (RPI18365, RPI18367, RPI18368, RPI18371, RPI18372, RPI18373, RPI18405, RPI18406, RPI18411, RPI18418, RPI18423) were identified which cause a reduction in the level of transactivation of a reporter gene by the X protein, as compared to the corresponding SAC ribozyme.

Example 8: HBV transgenic mouse study A

A transgenic mouse strain (founder strain 1.3.32 with a C57B1/6 background) that expresses HBV RNA and forms HBV viremia (Morrey et al., 1999, Antiviral Res., 42, 97-108; Guidotti et al., 1995, J. Virology, 69, 10, 6158-6169) was utilized to study the in vivo activity of ribozymes (RPI.18341, RPI.18371, RPI.18372, and RPI.18418) of the instant invention. This model is predictive in screening for anti-HBV agents. Ribozyme or the

equivalent volume of saline was administered via a continuous s.c. infusion using Alzet® mini-osmotic pumps for 14 days. Alzet® pumps were filled with test material(s) in a sterile fashion according to the manufacturer's instructions. Prior to in vivo implantation, pumps were incubated at 37°C overnight (≥ 18 hours) to prime the flow modulators. On the day of surgery, animals were lightly anesthetized with a ketamine/xylazine cocktail (94 mg/kg and 6 mg/kg, respectively; 0.3 ml, IP). Baseline blood samples (200 µl) were obtained from each animal via a retro-orbital bleed. For animals in groups 1-5 (Table XII), a 2 cm area near the base of the tail was shaved and cleansed with betadine surgical scrub and sequentially with 70% alcohol. A 1 cm incision in the skin was made with a #15 scalpel blade or a blunt pair of scissors near the base of the tail. Forceps were used to open a pocket rostrally (ie., towards the head) by spreading apart the subcutaneous connective tissue. The pump was inserted with the delivery portal pointing away from the incision. Wounds were closed with sterile 9mm stainless steel clips or with sterile 4-0 suture. Animals were then allowed to recover from anesthesia on a warm heating pad before being returned to their cage. Wounds were checked daily. Clips or sutures were replaced as needed. Incisions typically healed completely within 7 days post-op. Animals were then deeply anesthetized with the ketamine/xylazine cocktail (150 mg/kg and 10 mg/kg, respectively; 0.5 ml, IP) on day 14 post pump implantation. A midline thoracotomy/ laparatomy was performed to expose the abdominal cavity and the thoracic cavity. The left ventricle was cannulated at the base and animals exsanguinated using a 23G needle and 1 ml syringe. Serum was separated, frozen and analyzed for HBV DNA and antigen levels. Experimental groups were compared to the saline control group in respect to percent change from day 0 to day 14. HBV DNA was assayed by quantitative PCR.

Results

Table XII is a summary of the group designation and dosage levels used in this HBV transgenic mouse study. Baseline blood samples were obtained via a retroorbital bleed and animals (N=10/group) received anti-HBV ribozymes (100 mg/kg/day) as a continuous SC infusion. After 14 days, animals treated with a ribozyme targeting site 273 (RPI.18341) of the HBV RNA showed a significant reduction in serum HBV DNA concentration, compared to the saline treated animals as measured by a quantitative PCR assay. More specifically, the saline treated animals had a 69% increase in serum HBV DNA concentrations over this 2-week period while treatment with the 273 ribozyme (RPI.18341) resulted in a 60% decrease in serum HBV DNA concentrations. Ribozymes directed against sites 1833 (RPI.18371), 1873 (RPI.18418), and 1874 (RPI.18372) decreased serum HBV DNA concentrations by 49%, 15% and 16%, respectively.

Example 9: HBV transgenic mouse study B

A transgenic mouse strain (founder strain 1.3.32 with a C57B1/6 background) that expresses HBV RNA and forms HBV viremia (Morrey et al., 1999, Antiviral Res., 42, 97-108; Guidotti et al., 1995, J. Virology, 69, 10, 6158-6169) was utilized to study the in vivo activity of ribozymes (RPI.18341 and RPI.18371) of the instant invention. This model is predictive in screening for anti-HBV agents. Ribozyme or the equivalent volume of saline was administered via a continuous s.c. infusion using Alzet® mini-osmotic pumps for 14 days. Alzet® pumps were filled with test material(s) in a sterile fashion according to the manufacturer's instructions. Prior to in vivo implantation, pumps were incubated at 37°C overnight (≥ 18 hours) to prime the flow modulators. On the day of surgery, animals were lightly anesthetized with a ketamine/xylazine cocktail (94 mg/kg and 6 mg/kg, respectively; 0.3 ml, IP). Baseline blood samples (200 µl) were obtained from each animal via a retroorbital bleed. For animals in groups 1-10 (Table XIII), a 2 cm area near the base of the tail was shaved and cleansed with betadine surgical scrub and sequentially with 70% alcohol. A 1 cm incision in the skin was made with a #15 scalpel blade or a blunt pair of scissors near the base of the tail. Forceps were used to open a pocket rostrally (ie., towards the head) by spreading apart the subcutaneous connective tissue. The pump was inserted with the delivery portal pointing away from the incision. Wounds were closed with sterile 9-mm stainless steel clips or with sterile 4-0 suture. Animals were then allowed to recover from anesthesia on a warm heating pad before being returned to their cage. Wounds were checked daily. Clips or sutures were replaced as needed. Incisions typically healed completely within 7 days post-op. Animals were then deeply anesthetized with the ketamine/xylazine cocktail (150 mg/kg and 10 mg/kg, respectively; 0.5 ml, IP) on day 14 post pump implantation. A midline thoracotomy/ laparatomy was performed to expose the abdominal cavity and the thoracic cavity. The left ventricle was cannulated at the base and animals exsanguinated using a 23G needle and 1 ml syringe. Serum was separated, frozen and analyzed for HBV DNA and antigen levels. Experimental groups were compared to the saline control group in respect to percent change from day 0 to day 14. HBV DNA was assayed by quantitative PCR. Additionally, mice treated with 3TC® by oral gavage at a dose of 300 mg/kg/day for 14 days (group 11, Table XIII) were used as a positive control.

Results

Table XIII is a summary of the group designation and dosage levels used in this HBV transgenic mouse study. Baseline blood samples were obtained via a retroorbital bleed and animals (N=15/group) received anti-HBV ribozymes (100 mg/kg/day, 30 mg/kg/day, 10 mg/kg/day) as a continuous SC infusion. The results of this study are summarized in Figures 6, 7, and 8. As Figures 6, 7, and 8 demonstrate, Ribozymes directed against sites 273 (RPI.18341) and 1833 (RPI.18371) demonstrate reduction in the serum HBV DNA levels following 14 days of ribozyme treatment in HBV transgenic mice, as compared to scrambled attenuated core (SAC) ribozyme and saline controls. Furthermore, these ribozymes provide similar, and in some cases, greater reduction of serum HBV DNA levels, as compared to the 3TC® positive control, at lower doses than the 3TC® positive control.

Example 10: HBV DNA reduction in HepG2.2.15 cells

Ribozyme treatment of HepG2.2.15 cells was performed in a 96-well plate format, with 12 wells for each different ribozyme tested (RPI.18341, RPI.18371, RPI.18372, RPI.18418, RPI.20599SAC). HBV DNA levels in the media collected between 120 and 144 hours following transfection was determined using the Roche Amplicor HBV Assay. Treatment with RPI.18341 targeting site 273 resulted in a significant (P<0.05) decrease in HBV DNA levels of 62% compared to the SAC (RPI.20599). Treatment with RPI.18371 (site 1833) or RPI.18372 (site 1874) resulted in reductions in HBV DNA levels of 55% and 58% respectively, as compared to treatment with the SAC RPI.20599 (see Figure 9).

Example 11: RPI 18341 combination treatment with Lamivudine/Infergen®

The therapeutic use of nucleic acid molecules of the invention either alone or in combination with current therapies, for example lamivudine or type 1 IFN, can lead to improved HBV treatment modalities. To assess the potential of combination therapy, HepG2 cells transfected with a replication competent HBV cDNA, were treated with RPI 18341(HepBzymeTM), Infergen® (Amgen, Thousand Oaks Ca), and/or Lamivudine (Epivir®: GlaxoSmithKline, Research Triangle Park NC) either alone or in combination. Results indicated that combination treatment with either RPI 18341 plus Infergen® or combination of RPI 18341 plus lamivudine results in additive down regulation of HBsAg expression (P<0.001). These studies can be applied to the treatment of lamivudine resistant cells to further assses the potential for combination therapy of RPI 18341 plus currently available therapies for the treatment of chronic Hepatitis B.

Hep G2 cells were plated (2 x 104 cells/well) in 96-well microtiter plates and incubated overnight. A cationic lipid/DNA/ribozyme complex was formed containing (at final

concentrations) lipid (11-15 µg/mL), re-ligated psHBV-1 (4.5 µg/mL) and ribozyme (100-200 nM) in growth media. Following a 15 min incubation at 37°C, 20 µL of the complex was added to the plated Hep G2 cells in 80 µL of growth media minus antibiotics. For combination treatment with interferon, interferon (Infergen®, Amgen, Thousand Oaks CA) was added at 24 hr post-transfection and then incubated for an additional 96 hr. In the case of co-treatment with Lamivudine (3TC®), the ribozyme-containing cell culture media was removed at 120 hr post-transfection, fresh media containing Lamivudine (Epivir®: GlaxoSmithKline, Research Triangle Park NC) was added, and then incubated for an additional 48 hours. Treatment with Lamivudine or interferon individually was done on Hep G2 cells transfected with the pSHBV-1 vector alone and then treated identically to the co-treated cells. All transfections were performed in triplicate. Analysis of HBsAg levels was performed using the Diasorin HBsAg ELISA kit.

Results

At either 500 or 1000 units of Infergen®, the addition of 200 nM of RPI.18341 results in a 75-77% increase in anti-HBV activity as judged by the level of HBsAg secreted from the treated Hep G2 cells. Conversely, the anti-HBV activity of RPI.18341(at 200 nM) is increased 31-39% when used in combination of 500 or 1000 units of Infergen® (Figure 11).

At 25 nM Lamivudine (3TC®), the addition of 100 nM of RPI.18341 results in a 48% increase in anti-HBV activity as judged by the level of HBsAg secreted from treated Hep G2 cells. Conversely, the anti-HBV activity of RPI.18341 (at 100 nM) is increased 31% when used in combination with 25 nM Lamivudine (Figure 12).

Example 13: Modulation of HBV reverse transcriptase

The HBV reverse transcriptase (pol) binds to the 5' stem-loop structure in the HBV pregenomic RNA and synthesizes a four-nucleotide primer from the template UUCA. The reverse transcriptase then translocates to the 3' end of the pregenomic RNA where the primer binds to the UUCA sequence within the DR1 element and begins first-strand synthesis of HBV DNA. A number of short oligos, ranging in size from 4 to 16-mers, were designed to act as competitive inhibitors of the HBV reverse transcriptase primer, either by blocking the primer binding sites on the HBV RNA or by acting as a decoy.

The oligonucleotides and controls were synthesized in all 2'-O-methyl and 2'-O-allyl versions (Table XV). The inverse sequence of all oligos were generated to serve as controls. Primary screening of the competitive inhibitors was completed in the HBsAg transfection/ELISA system, in which the oligo is co-transfected with a HBV cDNA vector into Hep G2 cells. Following 4 days of incubation, the levels of HBsAg secreted into the cell

culture media were determined by ELISA. Screening of the 2'-O-allyl versions revealed that two of the decoy oligos (RPI.24944 and RPI.24945), consisting of 3x or 4x repeats of the RT primer binding site UUCA, along with the matched inverse controls, displayed considerable activity by decreasing HBsAg levels (Figure 15). This dramatic decrease in HBsAg levels is not due to cellular toxicity, because a MTS assay showed no difference in proliferation between any of the treated cells. A follow up experiment with a 5x UUCA repeat, the inverse sequence control, and a matched scrambled control, showed that all three oligos decreased HBsAg levels without cellular toxicity. Screening of the 2'-O-methyl versions of the oligos showed no activity from the 3x and 4x UUCA repeat (Figure 16), also suggesting that the anti-HBV effect is perhaps related to the 2'-O-allyl chemistry rather than to sequence specificity.

Screening of the 2'-O-methyl oligos did show that the 2'-O-methyl 2x UUCA repeat, RPI.24986, displayed activity in decreasing HBsAg levels as compared to the inverse control, RPI.24950. A dose response experiment showed that at the lower concentrations of 100 and 200 nM, RPI.24986 showed greater activity in decreasing HbsAg levels as compared to the inverse control RPI.24950 (Figure 17).

Example 14: Modulation of HBV transcription via Oligonucleotides targeting the Enchancer I core region of HBV DNA

In an effort to block HBV replication, oligonucleotides were designed to bind to two liver-specific factor binding sites in the Enhancer I core region of HBV genomic DNA. Hepatocyte Nuclear Factor 3 (HNF3) and Hepatocyte Nuclear Factor 4 (HNF4) bind to sites in the core region, with the HNF3 site being 5' to the HNF4 site. The HNF3 and HNF4 sites overlap or are adjacent to binding sites for a number of more ubiquitous factors, and are termed nuclear receptor response elements (NRRE). These elements are critical in regulating HBV transcription and replication in infected hepatocytes, with mutations in the HNF3 and HNF4 binding sites having been demonstrated to greatly reduce the levels of HBV replication (Bock et al., 2000, J. Virology, 74, 2193)

Oligonucleotides (Table XV) were designed to bind to either the positive or negative strands of the HNF3 or HNF4 binding sites. Scrambled controls were made to match each oligo. Each oligo was synthesized in all 2'-O-methyl/all phosphorothioate, or all 2'-O-allyl/all phosphorothioate chemistries. The initial screening of the oligos was done in the HBsAg transfection/ELISA system in Hep G2 cells. RPI.25654, which targets the negative strand of the HNF4 binding site, shows greater activity in reducing HBsAg levels as compared to RPI.25655, which targets the HNF4 site positive strand, and the scrambled control RPI.25656. This result was observed at both 200 and 400 nM (Figures 18 and 19).

In a follow-up study, RPI.25654 reduced HBsAg levels in a dose-dependent manner, from 50-200 nM (Figure 20).

Example 15: Transfection of HepG2 Cells with psHBV-1 and Nucleic acid

The human hepatocellular carcinoma cell line Hep G2 was grown in Dulbecco's modified Eagle media supplemented with 10% fetal calf serum, 2 mM glutamine, 0.1 mM nonessential amino acids, 1 mM sodium pyruvate, 25 mM Hepes, 100 units penicillin, and 100 µg/ml streptomycin. To generate a replication competent cDNA, prior to transfection the HBV genomic sequences are excised from the bacterial plasmid sequence contained in the psHBV-1 vector This was done with an EcoRI and Hind III restriction digest. Following completion of the digest, a ligation was performed under dilute conditions (20 µg/ml) to favor intermolecular ligation. The total ligation mixture was then concentrated using Qiagen spin columns. One skilled in the art would realize that other methods can be used to generate a replication competent cDNA

Secreted alkaline phosphatase (SEAP) was used to normalize the HBsAg levels to control for transfection variability. The pSEAP2-TK control vector was constructed by ligating a Bgl II-Hind III fragment of the pRL-TK vector (Promega), containing the herpes simplex virus thymidine kinase promoter region, into *Bgl* II/Hind III digested pSEAP2-Basic (Clontech). Hep G2 cells were plated (3 x 10⁴ cells/well) in 96-well microtiter plates and incubated overnight. A lipid/DNA/nucleic acid complex was formed containing (at final concentrations) cationic lipid (15 µg/ml), prepared psHBV-1 (4.5 µg/ml), pSEAP2-TK (0.5 µg/ml), and nucleic acid (100 µM). Following a 15 min. incubation at 37° C, the complexes were added to the plated Hep G2 cells. Media was removed from the cells 96 hr. post-transfection for HBsAg and SEAP analysis.

Transfection of the human hepatocellular carcinoma cell line, Hep G2, with replication competent HBV DNA results in the expression of HBV proteins and the production of virions.

Example 16: Analysis of HBsAg and SEAP Levels Following Nucleic Acid Treatment

Immulon 4 (Dynax) microtiter wells were coated overnight at 4° C with anti-HBsAg Mab (Biostride B88-95-31ad,ay) at 1 µg/ml in Carbonate Buffer (Na2CO3 15 mM, NaHCO3 35 mM, pH 9.5). The wells were then washed 4x with PBST (PBS, 0.05% Tween® 20) and blocked for 1 hr at 37° C with PBST, 1% BSA. Following washing as above, the wells were dried at 37° C for 30 min. Biotinylated goat anti-HBsAg (Accurate YVS1807) was diluted 1:1000 in PBST and incubated in the wells for 1 hr. at 37° C. The wells were washed 4x with PBST. Streptavidin/Alkaline Phosphatase Conjugate (Pierce 21324) was diluted to 250

ng/ml in PBST, and incubated in the wells for 1 hr. at 37° C. After washing as above, p-nitrophenyl phosphate substrate (Pierce 37620) was added to the wells, which were then incubated for 1 hr. at 37° C. The optical density at 405 nm was then determined. SEAP levels were assayed using the Great EscAPe® Detection Kit (Clontech K2041-1), as per the manufacturers instructions.

Example 17: Analysis of HBV DNA expression a HepG2.2.15 murine model

The development of new antiviral agents for the treatment of chronic Hepatitis B has been aided by the use of animal models that are permissive to replication of related Hepadnaviridae such as Woodchuck Hepatitis Virus (WHV) and Duck Hepatitis Virus (DHV). In addition, the use of transgenic mice has also been employed. The human hepatoblastoma cell line, HepG2.2.15, implanted as a subcutaneous (SC) tumor, can be used to produce Hepatitis B viremia in mice. This model is useful for evaluating new HBV therapies. Mice bearing HepG2.2.15 SC tumors show HBV viremia. HBV DNA can be detected in serum beginning on Day 35. Maximum serum viral levels reach 1.9x10⁵ copies/mL by day 49. A study also determined that the minimum tumor volume associated with viremia was 300 mm³. Therefore, the HepG2.2.15 cell line grown as a SC tumor produces a useful model of HBV viremia in mice. This new model can be suitable for evaluating new therapeutic regimens for chronic Hepatitis B.

HepG2.2.15 tumor cells contain a slightly truncated version of viral HBV DNA and sheds HBV particles. The purpose of this study was to identify what time period viral particles are shed from the tumor. Serum was analyzed for presence of HBV DNA over a time course after HepG2.2.15 tumor inoculation in Athymic Ncr nu/nu mice. HepG2.2.15 cells were carried and expanded in DMEM/10% FBS/2.4% HEPES/1% NEAA/1% Glutamine/1% Sodium Pyruvate media. Cells were resuspended in Delbecco's PBS with calcium/magnesium for injection. One hundred microliters of the tumor cell suspension (at a concentration of 1x108 cells/mL) were injected subcutaneously in the flank of NCR nu/nu female mice with a 23g1 needle and 1 cc syringe, thereby giving each mouse 1x10⁷ cells. Tumors were allowed to grow for a period of up to 49 days post tumor cell inoculation. Serum was sampled for analysis on days 1, 7, 14, 35, 42 and 49 post tumor inoculation. Length and width measurements from each tumor were obtained three times per week using a Jamison microcaliper. Tumor volumes were calculated from tumor length/width measurements (tumor volume = $0.5[a(b)^2]$ where a = longest axis of the tumor and b =shortest axis of the tumor). Serum was analyzed for the presence of HBV DNA by the Roche Amplicor HBV moniter TM DNA assay.

Experiment 1

HepG2.2.15 cells carried and expanded in DMEM/10% were FBS/2.4%HEPES/1%NEAA/1% Glutamine/1% Sodium Pyruvate media. Cells were resuspended in Delbecco's PBS with calcium/magnesium for injection. One hundred microliters of the tumor cell suspension (at a concentration of 1x108 cells/mL) were injected subcutaneously in the flank of NCR nu/nu female mice with a 23g1 needle and 1 cc syringe. thereby giving each mouse 1×10^7 cells. Tumors were allowed to grow for a period of up to 49 days post tumor cell inoculation. Serum was sampled for analysis on days 1, 7, 14, 35, 42 and 49 post tumor inoculation. Length and width measurements from each tumor were obtained three times per week using a Jamison microcaliper. Tumor volumes were calculated from tumor length/width measurements (tumor volume = $0.5[a(b)^2]$) where a = longest axis of the tumor and b = shortest axis of the tumor). Serum was analyzed for the presence of HBV DNA by the Roche Amplicor HBV moniter TM DNA assay.

Results

When athymic nu/nu female mice are subcutaneously injected with HepG2.2.15 cells and form tumors, HBV DNA is detected in serum (peak serum level was 1.9x10⁵ copies/mL). There is a positive correlation (rs = 0.7, p < 0.01) between tumor weight (milligrams) and HB viral copies/mL serum. Figure 21 shows a plot of HepG2.2.15 tumors in nu/nu female mice as tumor volume vs time. Table XVI shows the concentration of HBV DNA in relation to tumor size in the HepG2.2.15 implanted nu/nu female mice used in the study.

Experiment 2

HepG2.2.15 cells carried were and expanded in DMEM/10% FBS/2.4%HEPES/1%NEAA/1% Glutamine/1% Sodium Pyruvate media containing 400 μg/ml G418 antibiotic. G418-resistant cells were resuspended in Dulbecco's PBS with calcium/magnesium for injection. One hundred microliters of the tumor cell suspension (at a concentration of 1x108 cells/mL) were injected subcutaneously in the flank of NCR nu/nu female mice with a 23g1 needle and 1 cc syringe, thereby giving each mouse 1x10⁷ cells. Tumors were allowed to grow for a period of up to 49 days post tumor cell inoculation. Serum was sampled for analysis on day 37 post tumor inoculation. Length and width measurements from each tumor were obtained three times per week using a Jamison microcaliper. Tumor volumes were calculated from tumor length/width measurements (tumor volume = $0.5[a(b)^2]$ where a = longest axis of the tumor and b = shortest axis of the tumor). Serum was analyzed for the presence of HBV DNA by the Roche Amplicor HBV moniter TM DNA assay.

Results

When athymic nu/nu female mice are subcutaneously injected with G418 antibiotic resistant HepG2.2.15 cells and form tumors, HBV DNA is detected in serum (peak serum level was 4.0×10^5 copies/mL). There is a positive correlation (rs = 0.7, p < 0.01) between tumor weight (milligrams) and HB viral copies/mL serum. Figure 22 shows a plot of HepG2.2.15 tumors in nu/nu female mice as tumor volume vs time. Table XVIIshows the concentration of HBV DNA in relation to tumor size in the G418 antibiotic resistant HepG2.2.15 implanted nu/nu female mice used in the study.

Example 18: Identification of Potential Enzymatic nucleic acid molecules Cleavage Sites in HCV RNA

The sequence of HCV RNA was screened for accessible sites using a computer folding algorithm. Regions of the mRNA that did not form secondary folding structures and contained potential enzymatic nucleic acid cleavage sites were identified. The sequences of these cleavage sites are shown in Tables XVIII, XIX, XX and XXIII.

Example 19: Selection of Enzymatic nucleic acid molecules Cleavage Sites in HCV RNA

Enzymatic nucleic acid target sites were chosen by analyzing sequences of Human HCV (Genbank accession Nos: D11168, D50483.1, L38318 and S82227) and prioritizing the sites on the basis of folding. Enzymatic nucleic acid molecules are designed that could bind each target and are individually analyzed by computer folding (Christoffersen et al., 1994 J. Mol. Struc. Theochem, 311, 273; Jaeger et al., 1989, Proc. Natl. Acad. Sci. USA, 86, 7706) to assess whether the enzymatic nucleic acid molecules sequences fold into the appropriate secondary structure. Those enzymatic nucleic acid molecules with unfavorable intramolecular interactions between the binding arms and the catalytic core can be eliminated from consideration. As noted below, varying binding arm lengths can be chosen to optimize activity. Generally, at least 4 bases on each arm are able to bind to, or otherwise interact with, the target RNA.

Example 20: Chemical Synthesis and Purification of Enzymatic nucleic acids

Enzymatic nucleic acid molecules can be designed to anneal to various sites in the RNA message. The binding arms of the enzymatic nucleic acid molecules are complementary to the target site sequences described above. The enzymatic nucleic acid molecules can be chemically synthesized using, for example, RNA syntheses such as those described above and those described in Usman et al., (1987 J. Am. Chem. Soc., 109, 7845), Scaringe et al., (1990 Nucleic Acids Res., 18, 5433) and Wincott et al., supra. Such methods make use of common nucleic acid protecting and coupling groups, such as dimethoxytrityl at the 5'-end, and phosphoramidites at the 3'-end. The average stepwise coupling yields are

typically >98%. Enzymatic nucleic acid molecules can be modified to enhance stability by modification with nuclease resistant groups, for example, 2'-amino, 2'-C-allyl, 2'-flouro, 2'-O-methyl, 2'-H (for a review see Usman and Cedergren, 1992 TIBS 17, 34).

Enzymatic nucleic acid molecules can also be synthesized from DNA templates using bacteriophage T7 RNA polymerase (Milligan and Uhlenbeck, 1989, Methods Enzymol. 180, 51). Enzymatic nucleic acid molecules can be purified by gel electrophoresis using known methods, or can be purified by high pressure liquid chromatography (HPLC; See Wincott et al., supra; the totality of which is hereby incorporated herein by reference), and are resuspended in water. The sequences of chemically synthesized enzymatic nucleic acid constructs are shown below in **Tables XX**, **XXI** and **XXIII**. The antisense nucleic acid molecules shown in **Table XXII** were chemically synthesized.

Inactive enzymatic nucleic acid molecules, for example inactive hammerhead enzymatic nucleic acids, can be synthesized by substituting the order of G5A6 and substituting a U for A14 (numbering from Hertel et al., 1992 Nucleic Acids Res., 20, 3252).

Example 21: Enzymatic Nucleic Acid Cleavage of HCV RNA Target in vitro

Enzymatic nucleic acid molecules targeted to the HCV are designed and synthesized as described above. These enzymatic nucleic acid molecules can be tested for cleavage activity in vitro, for example using the following procedure. The target sequences and the nucleotide location within the HCV are given in Tables XVIII, XIX, XX and XXIII.

Cleavage Reactions: Full-length or partially full-length, internally-labeled target RNA for enzymatic nucleic acid molecule cleavage assay is prepared by in vitro transcription in the presence of [\alpha - 32p] CTP, passed over a G 50 Sephadex column by spin chromatography and used as substrate RNA without further purification. Alternately, substrates are 5'-32P-end labeled using T4 polynucleotide kinase enzyme. Assays are performed by pre-warming a 2X concentration of purified enzymatic nucleic acid molecule in enzymatic nucleic acid molecule cleavage buffer (50 mM Tris-HCl, pH 7.5 at 37°C, 10 mM MgCl₂) and the cleavage reaction was initiated by adding the 2X enzymatic nucleic acid molecule mix to an equal volume of substrate RNA (maximum of 1-5 nM) that was also pre-warmed in cleavage buffer. As an initial screen, assays are carried out for 1 hour at 37°C using a final concentration of either 40 nM or 1 mM enzymatic nucleic acid molecule, i.e., enzymatic nucleic acid molecule excess. The reaction is quenched by the addition of an equal volume of 95% formamide, 20 mM EDTA, 0.05% bromophenol blue and 0.05% xylene cyanol after which the sample is heated to 95°C for 2 minutes, quick chilled and loaded onto a denaturing polyacrylamide gel. Substrate RNA and the specific RNA cleavage products generated by enzymatic nucleic acid molecule cleavage are visualized on an autoradiograph of the gel. The

percentage of cleavage is determined by Phosphor Imager[®] quantitation of bands representing the intact substrate and the cleavage products.

Alternatively, enzymatic nucleic acid molecules and substrates were synthesized in 96-well format using 0.2µmol scale. Substrates were 5'-32P labeled and gel purified using 7.5% polyacrylamide gels, and eluting into water. Assays were done by combining trace substrate with 500nM enzymatic nucleic acid or greater, and initiated by adding final concentrations of 40mM Mg⁺², and 50mM Tris-Cl pH 8.0. For each enzymatic nucleic acid/substrate combination a control reaction was done to ensure cleavage was not the result of non-specific substrate degradation. A single three hour time point was taken and run on a 15% polyacrylamide gel to asses cleavage activity. Gels were dried and scanned using a Molecular Dynamics Phosphorimager and quantified using Molecular Dynamics ImageQuant software. Percent cleaved was determined by dividing values for cleaved substrate bands by full-length (uncleaved) values plus cleaved values and multiplying by 100 (%cleaved=[C/(U+C)]*100). In vitro cleavage data of enzymatic nucleic acid molecules targeting plus and minus strand HCV RNA is shown in Table XXIII.

Example 22: Inhibition of Luciferase Activity Using HCV Targeting Enzymatic nucleic acids in OST7 Cells

The capability of enzymatic nucleic acids to inhibit HCV RNA intracellularly was tested using a dual reporter system that utilizes both firefly and Renilla luciferase (Figure 23). The enzymatic nucleic acids targeted to the 5' HCV UTR region, which when cleaved, would prevent the translation of the transcript into luciferase.

Synthesis of Stabilized Enzymatic nucleic acids

Enzymatic nucleic acids were designed to target 15 sites within the 5'UTR of the HCV RNA (Figure 24) and synthesized as previously described, except that all enzymatic nucleic acids contain two 2'-amino uridines. Enzymatic nucleic acid and paired control sequences for targeted sites used in various examples herein are shown in Table XXI.

Reporter plasmids

The T7/HCV/firefly luciferase plasmid (HCVT7C₁₋₃₄₁, genotype 1a) was graciously provided by Aleem Siddiqui (University of Colorado Health Sciences Center, Denver, CO). The T7/HCV/firefly luciferase plasmid contains a T7 bacteriophage promoter upstream of the HCV 5'UTR (nucleotides 1-341)/firefly luciferase fusion DNA. The Renilla luciferase control plasmid (pRLSV40) was purchased from PROMEGA.

Luciferase assay

Dual luciferase assays were carried out according to the manufacturer's instructions (PROMEGA) at 4 hours after co-transfection of reporter plasmids and enzymatic nucleic acids. All data is shown as the average ratio of HCV/firefly luciferase luminescence over Renilla luciferase luminescence as determined by triplicate samples ± SD.

Cell culture and transfections

OST7 cells were maintained in Dulbecco's modified Eagle's medium (GIBCO BRL) supplemented with 10% fetal calf serum, L-glutamine (2 mM) and penicillin/streptomycin. For transfections, OST7 cells were seeded in black-walled 96-well plates (Packard) at a density of 12,500 cells/well and incubated at 37°Cunder 5% CO₂ for 24 hours. Cotransfection of target reporter HCVT7C (0.8 µg/mL), control reporter pRLSV40, (1.2 µg/mL) and enzymatic nucleic acid, (50 - 200 nM) was achieved by the following method: a 5X mixture of HCVT7C (4 µg/mL), pRLSV40 (6 µg/mL) enzymatic nucleic acid (250 – 1000 nM) and cationic lipid (28.5 µg/mL) was made in 150 µL of OPTI-MEM (GIBCO BRL) minus serum. Reporter/enzymatic nucleic acid/lipid complexes were allowed to form for 20 min at 37°Cunder 5% CO₂. Medium was aspirated from OST7 cells and replaced with 120 µL of OPTI-MEM (GIBCO BRL) minus serum, immediately followed by the addition of 30 µL of 5X reporter/enzymatic nucleic acid/lipid complexes. Cells were incubated with complexes for 4 hours at 37°Cunder 5% CO₂.

IC50 determinations for dose response curves

Apparent IC_{50} values were calculated by linear interpolation. The apparent IC_{50} is 1/2 the maximal response between the two consecutive points in which approximately 50% inhibition of HCV/luciferase expression is observed on the dose curve.

Quantitation of RNA Samples

Total RNA from transfected cells was purified using the Qiagen RNeasy 96 procedure including a DNase I treatment according to the manufacturer's instructions. Real time RT-PCR (Taqman assay) was performed on purified RNA samples using separate primer/probe sets specific for either firefly or Renilla luciferase RNA. Firefly luciferase primers and probe were upper (5'-CGGTCGGTAAAGTTGTTCCATT-3') (SEQ ID NO. 16202), lower (5'-CCTCTGACACATAATTCGCCTCT-3') (SEQ ID NO. 16203), and probe (5'-FAMTGAAGCGAAGGTTGTGGATCTGGATACC-TAMRA-3') (SEQ ID NO 16204), and Renilla luciferase primers and probe were upper (5'-GTTTATTGAATCGGACCCAGGAT-3') (SEQ ID NO. 16205), lower (5'-AGGTGCATCTTCTTGCGAAAA-3') (SEQ ID NO. 16206), and probe (5'-FAM-CTTTTCCAATGCTATTGTTGAAGGTGCCAA-3') (SEQ ID NO. 16207) -TAMRA, both sets of primers and probes were purchased from Integrated DNA

Technologies. RNA levels were determined from a standard curve of amplified RNA purified from a large-scale transfection. RT minus controls established that RNA signals were generated from RNA and not residual plasmid DNA. RT-PCR conditions were: 30 min at 48°C, 10 min at 95°C, followed by 40 cycles of 15 sec at 95°C and 1 min at 60°C. Reactions were performed on an ABI Prism 7700 sequence detector. Levels of firefly luciferase RNA were normalized to the level of Renilla luciferase RNA present in the same sample. Results are shown as the average of triplicate treatments \pm SD.

Example 23: Inhibition of HCV 5'UTR-luciferase expression by synthetic stabilized enzymatic nucleic acids

The primary sequence of the HCV 5'UTR and characteristic secondary structure (Figure 24) is highly conserved across all HCV genotypes, thus making it a very attractive target for enzymatic nucleic acid-mediated cleavage. Enzymatic hammerhead nucleic acids, as a generally shown in Figure 25 and Table XXI (RPI 12249-12254, 12257-12265) were designed and synthesized to target 15 of the most highly conserved sites in the 5'UTR of HCV RNA. These synthetic enzymatic nucleic acids were stabilized against nuclease degradation by the addition of modifications such as 2'-O-methyl nucleotides, 2'-aminouridines at U4 and U7 core positions, phosphorothioate linkages, and a 3'-inverted abasic cap.

In order to mimic cytoplasmic transcription of the HCV genome, OST7 cells were transfected with a target reporter plasmid containing a T7 bacteriophage promoter upstream of a HCV 5'UTR/firefly luciferase fusion gene. Cytoplasmic expression of the target reporter is facilitated by high levels of T7 polymerase expressed in the cytoplasm of OST7 cells. Cotransfection of target reporter HCVT7C1-341 (firefly luciferase), control reporter pRLSV40 (Renilla luciferase) and enzymatic nucleic acid was carried out in the presence of cationic lipid. To determine the background level of luciferase activity, applicant used a control enzymatic nucleic acid that targets an irrelevant, non-HCV sequence. Transfection of reporter plasmids in the presence of this irrelevant control enzymatic nucleic acid (ICR) resulted in a slight decrease of reporter expression when compared to transfection of reporter plasmids alone. Therefore, the ICR was used to control for non-specific effects on reporter expression during treatment with HCV specific enzymatic nucleic acids. Renilla luciferase expression from the pRLSV40 reporter was used to normalize for transfection efficiency and sample recovery.

Of the 15 amino-modified hammerhead enzymatic nucleic acids tested, 12 significantly inhibited HCV/luciferase expression (> 45%, P < 0.05) as compared to the ICR (Figure 26A). These data suggest that most of the HCV 5'UTR sites targeted here are accessible to enzymatic nucleic acid binding and subsequent RNA cleavage. To investigate further the

enzymatic nucleic acid-dependent inhibition of HCV/luciferase activity, hammerhead enzymatic nucleic acids designed to cleave after sites 79, 81, 142, 192, 195, 282 or 330 of the HCV 5'UTR were selected for continued study because their anti-HCV activity was the most efficacious over several experiments. A corresponding attenuated core (AC) control was synthesized for each of the 7 active enzymatic nucleic acids (Table XX). Each paired AC control contains similar nucleotide composition to that of its corresponding active enzymatic nucleic acid however, due to scrambled binding arms and changes to the catalytic core, lacks the ability to bind or catalyze the cleavage of HCV RNA. Treatment of OST7 cells with enzymatic nucleic acids designed to cleave after sites 79, 81, 142, 195 or 330 resulted in significant inhibition of HCV/luciferase expression (65%, 50%, 50%, 80% and 80%, respectively) when compared to HCV/luciferase expression in cells treated with corresponding ACs, P < 0.05 (Figure 26B). It should be noted that treatment with either the ICR or ACs for sites 79, 81, 142 or 192 caused a greater reduction of HCV/luciferase expression than treatment with ACs for sites 195, 282 or 330. The observed differences in HCV/luciferase expression after treatment with ACs most likely represents the range of activity due to non-specific effects of oligonucleotide treatment and/or differences in base composition. Regardless of differences in HCV/luciferase expression levels observed as a result of treatment with ACs, active enzymatic nucleic acids designed to cleave after sites 79. 81, 142, 195, or 330 demonstrated similar and potent anti-HCV activity (Figure 26B).

Example 24: Synthetic stabilized enzymatic nucleic acids inhibit HCV/luciferase expression in a concentration-dependent manner

In order to characterize enzymatic nucleic acid efficacy in greater detail, these same 5 lead hammerhead enzymatic nucleic acids were tested for their ability to inhibit HCV/luciferase expression over a range of enzymatic nucleic acid concentrations (0 nM - 100 nM). For constant transfection conditions, the total concentration of nucleic acid was maintained at 100 nM for all samples by mixing the active enzymatic nucleic acid with its corresponding AC. Moreover, mixing of active enzymatic nucleic acid and AC maintains the lipid to nucleic acid charge ratio. A concentration-dependent inhibition of HCV/luciferase expression was observed after treatment with each of the 5 enzymatic nucleic acids (Figures 27A-E). By linear interpolation, the enzymatic nucleic acid concentration resulting in 50% inhibition (apparent IC₅₀) of HCV/luciferase expression ranged from 40 - 215 nM. The two most efficacious enzymatic nucleic acids were those designed to cleave after sites 195 or 330 with apparent IC₅₀ values of 46 nM and 40 nM, respectively (Figures 27D and E).

Example 25: An enzymatic nucleic acid mechanism is required for the observed inhibition of HCV/luciferase expression

To confirm that an enzymatic nucleic acid mechanism of action was responsible for the observed inhibition of HCV/luciferase expression, paired binding-arm attenuated core (BAC) controls (RPI 15291 and 15294) were synthesized for direct comparison to enzymatic nucleic acids targeting sites 195 (RPI 12252) and 330 (RPI 12254). Paired BACs can specifically bind HCV RNA but are unable to promote RNA cleavage because of changes in the catalytic core and, thus, can be used to assess inhibition due to binding alone. Also included in this comparison were paired SAC controls (RPI 15292 and 15295) that contain scrambled binding arms and attenuated catalytic cores, and so lack the ability to bind the target RNA or to catalyze target RNA cleavage.

Enzymatic nucleic acid cleavage of target RNA should result in both a lower level of HCV/luciferase RNA and a subsequent decrease in HCV/luciferase expression. In order to analyze target RNA levels, a reverse transcriptase/polymerase chain reaction (RT-PCR) assay was employed to quantify HCV/luciferase RNA levels. Primers were designed to amplify the luciferase coding region of the HCV 5'UTR/luciferase RNA. This region was chosen because HCV-targeted enzymatic nucleic acids that might co-purify with cellular RNA would not interfere with RT-PCR amplification of the luciferase RNA region. Primers were also designed to amplify the Renilla luciferase RNA so that Renilla RNA levels could be used to control for transfection efficiency and sample recovery.

OST7 cells were treated with active enzymatic nucleic acids designed to cleave after sites 195 or 330, paired SACs, or paired BACs. Treatment with enzymatic nucleic acids targeting site 195 or 330 resulted in a significant reduction of HCV/luciferase RNA when compared to their paired SAC controls (P < 0.01). In this experiment the site 195 enzymatic nucleic acid was more efficacious than the site 330 enzymatic nucleic acid (Figure 28A). Treatment with paired BACs that target site 195 or 330 did not reduce HCV/luciferase RNA when compared to the corresponding SACs, thus confirming that the ability to bind alone does not result in a reduction of HCV/luciferase RNA.

To confirm that enzymatic nucleic acid-mediated cleavage of target RNA is necessary for inhibition of HCV/luciferase expression, HCV/luciferase activity was determined in the same experiment. As expected, significant inhibition of HCV/luciferase expression was observed after treatment with active enzymatic nucleic acids when compared to paired SACs (Figure 28B). Importantly, treatment with paired BACs did not inhibit HCV/luciferase expression, thus confirming that the ability to bind alone is also not sufficient to inhibit translation. As observed in the RNA assay, the site 195 enzymatic nucleic acid was more efficacious than the site 330 enzymatic nucleic acid in this experiment. However, a correlation between enzymatic nucleic acid-mediated HCV RNA reduction and inhibition of HCV/luciferase translation was observed for enzymatic nucleic acids to both sites. The

reduction in target RNA and the necessity for an active enzymatic nucleic acid catalytic core confirm that a enzymatic nucleic acid mechanism is required for the observed reduction in HCV/luciferase protein activity in cells treated with site 195 or site 330 enzymatic nucleic acids.

Example 26: Zinzyme Inhibition of chimeric HCV/Poliovirus replication

During HCV infection, viral RNA is present as a potential target for enzymatic nucleic acid cleavage at several processes: un-coating, translation, RNA replication and packaging. Target RNA can be more or less accessible to enzymatic nucleic acid cleavage at any one of these steps. Although the association between the HCV initial ribosome entry site (IRES) and the translation apparatus is mimicked in the HCV 5'UTR/luciferase reporter system, these other viral processes are not represented in the OST7 system. The resulting RNA/protein complexes associated with the target viral RNA are also absent. Moreover, these processes can be coupled in an HCV-infected cell which could further impact target RNA accessibility. Therefore, applicant tested whether enzymatic nucleic acids designed to cleave the HCV 5'UTR could effect a replicating viral system.

Recently, Lu and Wimmer characterized a HCV-poliovirus chimera in which the poliovirus IRES was replaced by the IRES from HCV (Lu & Wimmer, 1996, Proc. Natl. Acad. Sci. USA. 93, 1412-1417). Poliovirus (PV) is a positive strand RNA virus like HCV, but unlike HCV is non-enveloped and replicates efficiently in cell culture. The HCV-PV chimera expresses a stable, small plaque phenotype relative to wild type PV.

The following enzymatic nucleic acid molecules (zinzymes) were synthesized and tested for replicative inhibition of an HCV/Poliovirus chimera: RPI 18763, RPI 18812, RPI 18749, RPI 18765, RPI 18792, and RPI 18814 (**Table XX**). A scrambled attenuated core enzymatic nucleic acid, RPI 18743, was used as a control.

HeLa cells were infected with the HCV-PV chimera for 30 minutes and immediately treated with enzymatic nucleic acid. HeLa cells were seeded in U-bottom 96-well plates at a density of 9000-10,000 cells/well and incubated at 37°C under 5% CO2 for 24 h. Transfection of nucleic acid (200 nM) was achieved by mixing of 10X nucleic acid (2000 nM) and 10X of a cationic lipid (80 μg/ml) in DMEM (Gibco BRL) with 5% fetal bovine serum (FBS). Nucleic acid/lipid complexes were allowed to incubate for 15 minutes at 37°C under 5% CO2. Medium was aspirated from cells and replaced with 80 μl of DMEM (Gibco BRL) with 5% FBS serum, followed by the addition of 20 μls of 10X complexes. Cells were incubated with complexes for 24 hours at 37°C under 5% CO2.

The yield of HCV-PV from treated cells was quantified by plaque assay. The plaque assays were performed by diluting virus samples in serum-free DMEM (Gibco BRL) and applying 100 µl to HeLa cell monolayers (~80% confluent) in 6-well plates for 30 minutes. Infected monolayers were overlayed with 3 ml 1.2% agar (Sigma) and incubated at 37°C under 5% CO2. Two or three days later the overlay was removed, monolayers were stained with 1.2% crystal violet, and plaque forming units were counted. The results for the zinzyme inhibition of HCV-PV replication are shown in Figure 33.

Example 27: Antisense inhibition of chimeric HCV/Poliovirus replication

Antisense nucleic acid molecules (RPI 17501 and RPI 17498, Table XXII) were tested for replicative inhibition of an HCV/Poliovirus chimera compared to scrambled controls. An antisense nucleic acid molecule is a non-enzymatic nucleic acid molecule that binds to target RNA by means of RNA-RNA or RNA-DNA or RNA-PNA (protein nucleic acid; Egholm et al., 1993 Nature 365, 566) interactions and alters the activity of the target RNA (for a review, see Stein and Cheng, 1993 Science 261, 1004 and Woolf et al., US patent No. 5,849,902). Typically, antisense molecules are complementary to a target sequence along a single contiguous sequence of the antisense molecule. However, in certain embodiments, an antisense molecule can bind to substrate such that the substrate molecule forms a loop, and/or an antisense molecule can bind such that the antisense molecule forms a loop. Thus, the antisense molecule can be complementary to two (or even more) non-contiguous substrate sequences or two (or even more) non-contiguous sequence portions of an antisense molecule can be complementary to a target sequence or both. For a review of current antisense strategies, see Schmajuk et al., 1999, J. Biol. Chem., 274, 21783-21789, Delihas et al., 1997, Nature, 15, 751-753, Stein et al., 1997, Antisense N. A. Drug Dev., 7, 151, Crooke, 2000, Methods Enzymol., 313, 3-45; Crooke, 1998, Biotech. Genet. Eng. Rev., 15, 121-157, Crooke, 1997, Ad. Pharmacol., 40, 1-49. In addition, antisense DNA can be used to target RNA by means of DNA-RNA interactions, thereby activating RNase H, which digests the target RNA in the duplex. The antisense oligonucleotides can comprise one or more RNAse H activating region, which is capable of activating RNAse H cleavage of a target RNA. Antisense DNA can be synthesized chemically or expressed via the use of a single stranded DNA expression vector or equivalent thereof. Additionally, antisense molecules can be used in combination with the enzymatic nucleic acid molecules of the instant invention.

A RNase H activating region is a region (generally greater than or equal to 4-25 nucleotides in length, preferably from 5-11 nucleotides in length) of a nucleic acid molecule capable of binding to a target RNA to form a non-covalent complex that is recognized by cellular RNase H enzyme (see for example Arrow et al., US 5,849,902; Arrow et al., US 5,989,912). The RNase H enzyme binds to the nucleic acid molecule-target RNA complex

and cleaves the target RNA sequence. The RNase H activating region comprises, for example, phosphodiester, phosphorothioate (preferably at least four of the nucleotides are phosphorothiote substitutions; more specifically, 4-11 of the nucleotides are phosphorothiote substitutions); phosphorodithioate, 5'-thiophosphate, or methylphosphonate backbone chemistry or a combination thereof. In addition to one or more backbone chemistries described above, the RNase H activating region can also comprise a variety of sugar chemistries. For example, the RNase H activating region can comprise deoxyribose, arabino, fluoroarabino or a combination thereof, nucleotide sugar chemistry. Those skilled in the art will recognize that the foregoing are non-limiting examples and that any combination of phosphate, sugar and base chemistry of a nucleic acid that supports the activity of RNase H enzyme is within the scope of the definition of the RNase H activating region and the instant invention.

HeLa cells were infected with the HCV-PV chimera for 30 minutes and immediately treated with antisense nucleic acid. HeLa cells were seeded in U-bottom 96-well plates at a density of 9000-10,000 cells/well and incubated at 37°C under 5% CO2 for 24 h. Transfection of nucleic acid (200 nM) was achieved by mixing of 10X nucleic acid (2000 nM) and 10X of a cationic lipid (80 μg/ml) in DMEM (Gibco BRL) with 5% fetal bovine serum (FBS). Nucleic acid/lipid complexes were allowed to incubate for 15 minutes at 37°C under 5% CO2. Medium was aspirated from cells and replaced with 80 μl of DMEM (Gibco BRL) with 5% FBS serum, followed by the addition of 20 μls of 10X complexes. Cells were incubated with complexes for 24 hours at 37°C under 5% CO2.

The yield of HCV-PV from treated cells was quantified by plaque assay. The plaque assays were performed by diluting virus samples in serum-free DMEM (Gibco BRL) and applying 100 µl to HeLa cell monolayers (~80% confluent) in 6-well plates for 30 minutes. Infected monolayers were overlayed with 3 ml 1.2% agar (Sigma) and incubated at 37°C under 5% CO2. Two or three days later the overlay was removed, monolayers were stained with 1.2% crystal violet, and plaque forming units were counted. The results for the antisense inhibition of HCV-PV are shown in Figure 34.

Example 28: Nucleic acid Inhibition of Chimeric HCV/PV in combination with Interferon

One of the limiting factors in interferon (IFN) therapy for chronic HCV are the toxic side effects associated with IFN. Applicant has reasoned that lowering the dose of IFN needed can reduce these side effects. Applicant has previously shown that enzymatic nucleic acid molecules targeting HCV RNA have a potent antiviral effect against replication of an HCV-poliovirus (PV) chimera (Macejak et al., 2000, Hepatology, 31, 769-776). In order to determine if the antiviral effect of type 1 IFN could be improved by the addition of anti-HCV enzymatic nucleic acid treatment, a dose response (0 U/ml to 100 U/ml) with IFN alfa 2a or

IFN alfa 2b was performed in HeLa cells in combination with 200 nM site 195 anti-HCV enzymatic nucleic acid (RPI 13919) or enzymatic nucleic acid control (SAC) treatment. The SAC control (RPI 17894) is a scrambled binding arm, attenuated core version of the site 195 enzymatic nucleic acid (RPI 13919). IFN dose responses were performed with different pretreatment regimes to find the dynamic range of inhibition in this system. In these studies, HeLa cells were used instead of HepG2 because of more efficient enzymatic nucleic acid delivery (Macejak et al., 2000, Hepatology, 31, 769-776).

Cells and Virus

HeLa cells were maintained in DMEM (BioWhittaker, Walkersville, MD) supplemented with 5% fetal bovine serum. A cloned DNA copy of the HCV-PV chimeric virus was a gift of Dr. Eckard Wimmer (NYU, Stony Brook, NY). An RNA version was generated by in vitro transcription and transfected into HeLa cells to produce infectious virus (Lu and Wimmer, 1996, PNAS USA., 93, 1412-1417).

Enzymatic nucleic acid Synthesis

Nuclease resistant enzymatic nucleic acids and control oligonucleotides containing 2'-O-methyl-nucleotides, 2'-deoxy-2'-C-allyl uridine, a 3'-inverted abasic cap, and phosphorothioate linkages were chemically synthesized. The anti-HCV enzymatic nucleic acid (RPI 13919) targeting cleavage after nucleotide 195 of the 5' UTR of HCV is shown in Table XX. Attenuated core controls have nucleotide changes in the core sequence that greatly diminished the enzymatic nucleic acid's cleavage activity. The attenuated controls either contain scrambled binding arms (referred to as SAC, RPI 18743) or maintain binding arms (BAC, RPI 17894) capable of binding to the HCV RNA target.

Enzymatic nucleic acid Delivery

A cationic lipid was used as a cytofectin agent. HeLa cells were seeded in 96-well plates at a density of 9000-10,000 cells/well and incubated at 37°Cunder 5% CO2 for 24 h. Transfection of enzymatic nucleic acid or control oligonucleotides (200 nM) was achieved by mixing 10X enzymatic nucleic acid or control oligonucleotides (2000 nM) with 10X RPI.9778 (80 μg/ml) in DMEM containing 5% fetal bovine serum (FBS) in U-bottom 96-well plates to make 5X complexes. Enzymatic nucleic acid/lipid complexes were allowed to incubate for 15 min at 37°C under 5% CO2. Medium was aspirated from cells and replaced with 80 μl of DMEM (Gibco BRL) containing 5% FBS serum, followed by the addition of 20 μl of 5X complexes. Cells were incubated with complexes for 24 h at 37°Cunder 5% CO2.

Interferon/Enzymatic nucleic acid Combination Treatment

Interferon alfa 2a (Roferon®) was purchased from Roche Bioscience (Palo Alto, CA). Interferon alfa 2b (Intron A®) was purchased from Schering-Plough Corporation (Madison, NJ). Consensus interferon (interferon-alfa-con 1) was a generous gift of Amgen, Inc. (Thousand Oaks, CA). For the basis of comparison, the manufacturers' specified units were used in the studies reported here; however, the manufacturers' unit definitions of these three IFN preparations are not necessarily the same. Nevertheless, since clinical dosing is based on the manufacturers' specified units, a direct comparison based on these units has relevance to clinical therapeutic indices. HeLa cells were seeded (10,000 cells per well) and incubated at 37°Cunder 5% CO2 for 24 h. Cells were then pre-treated with interferon in complete media (DMEM + 5% FBS) for 4 h and then infected with HCV-PV at a multiplicity of infection (MOI) = 0.1 for 30 min. The viral inoculum was then removed and enzymatic nucleic acid or attenuated control (SAC or BAC) was delivered with the cytofectin formulation (8 µg/ml) in complete media for 24 h as described above. Where indicated for enzymatic nucleic acid dose response studies, active enzymatic nucleic acid was mixed with SAC to maintain a 200 nM total oligonucleotide concentration and the same lipid charge ratio. After 24 h, cells were lysed to release virus by three cycles of freeze/thaw. Virus was quantified by plaque assay and viral yield is reported as mean plaque forming units per ml (pfu/ml) + SD. All experiments were repeated at least twice and the trends in the results reported were reproducible. Significance levels (P values) were determined by the Student's test.

Plaque Assay

Virus samples were diluted in serum-free DMEM and 100 µl applied to Vero cell monolayers (~80% confluent) in 6-well plates for 30 min. Infected monolayers were overlaid with 3 ml 1.2% agar (Sigma Chemical Company, St. Louis, MO) and incubated at 37°Cunder 5% CO2. When plaques were visible (after two to three days) the overlay was removed, monolayers were stained with 1.2% crystal violet, and plaque forming units were counted.

Results

As shown in Figure 29A and 29B, treatment with the site 195 (RPI 13919) anti-HCV hammerhead enzymatic nucleic acid alone (0 U/ml IFN) resulted in viral replication that was dramatically reduced compared to SAC-treated cells (85%, P<0.01). For both IFN alfa 2a (Figure 29A) or IFN alfa 2b (Figure 29B), treatment with 25 U/ml resulted in a ~90% inhibition of HCV-PV replication in SAC-treated cells as compared to cells treated with SAC alone (p<0.01 for both observations). The maximal level of inhibition in SAC-treated cells (94%) was achieved by treatment with \geq 50U/ml of either IFN alfa 2a or IFN alfa 2b (p<0.01 for both observations versus SAC alone). Maximal inhibition could however, be achieved by a 5-fold lower dose of IFN alfa 2a (10 U/ml) if enzymatic nucleic acid targeting site 195 in the 5' UTR of HCV RNA was given in combination (Figure 29A, p<0.01). While the

additional effect of enzymatic nucleic acid treatment on IFN alfa 2b-treated cells at 10 U/ml was very slight, the combined effect with 25 U/ml IFN alfa 2b was greater in magnitude (Figure 29B). For both interferons tested, pretreatment with 25 U/ml in combination with 200 nM site 195 anti-HCV enzymatic nucleic acid resulted in an even greater level of inhibition of viral replication (>98%) compared to replication in cells treated with 200 nM SAC alone (P<0.01).

A dose response of the site 195 anti-HCV enzymatic nucleic acid was also performed in HeLa cells, either with or without 12.5 U/ml IFN alfa 2a or IFN alfa 2b pretreatment. As shown in Figure 30, enzymatic nucleic acid-mediated inhibition was dose-dependent and a significant inhibition of HCV-PV replication (>75% versus 0 nM enzymatic nucleic acid, P<0.01) could be achieved by treatment with ≥150 nM anti-HCV enzymatic nucleic acid alone (no IFN). However, in IFN-pretreated cells, the dose of anti-HCV enzymatic nucleic acid needed to achieve this level of inhibition was decreased 3-fold to 50 nM (P<0.01 versus 0 nM enzymatic nucleic acid). In comparison, treatment with the site 195 anti-HCV enzymatic nucleic acid alone at 50 nM resulted in only ~40% inhibition of virus replication. Pretreatment with IFN enhanced the antiviral effect of site 195 enzymatic nucleic acid at all enzymatic nucleic acid doses, compared to no IFN pretreatment.

Interferon-alfacon1, consensus IFN (CIFN), is another type 1 IFN that is used to treat chronic HCV. To determine if a similar enhancement can occur in CIFN-treated cells, a dose response with CIFN was performed in HeLa cells using 0 U/ml to 12.5 U/ml CIFN in combination with 200 nM site 195 anti-HCV enzymatic nucleic acid or SAC treatment (Figure 31A). Again, in the presence of the site 195 anti-HCV enzymatic nucleic acid alone, viral replication was dramatically reduced compared to SAC-treated cells. As shown in Figure 31A, treatment with 200 nM anti-HCV enzymatic nucleic acid alone significantly inhibited HCV-PV replication (90% versus SAC treatment, P<0.01). However, pretreatment with concentrations of CIFN from 1 U/ml to 12.5 U/ml in combination with 200 nM anti-HCV enzymatic nucleic acid resulted in even greater inhibition of viral replication (>98%) compared to replication in cells treated with 200 nM SAC alone (P<0.01). It is important to note that pretreatment with 1 U/ml CIFN in SAC-treated cells did not have a significant effect on HCV-poliovirus replication, but in the presence of enzymatic nucleic acid a significant inhibition of replication was observed (>98%, P<0.01). Thus, the dose of CIFN needed to achieve a >98% inhibition could be lowered to 1 U/ml in cells also treated with 200 nM site 195 anti-HCV enzymatic nucleic acid.

A dose response of site 195 anti-HCV enzymatic nucleic acid was then performed in HeLa cells, either with or without 12.5 U/ml CIFN pretreatment. As shown in Figure 31B, a significant inhibition of HCV-PV replication (>95% versus 0 nM enzymatic nucleic acid,

P<0.01) could be achieved by treatment with ≥150 nM anti-HCV enzymatic nucleic acid alone. However, in CIFN-pretreated cells, the dose of anti-HCV enzymatic nucleic acid needed to achieve this level of inhibition was only 50 nM (P<0.01). In comparison, treatment with the site 195 anti-HCV enzymatic nucleic acid alone at 50 nM resulted in ~50% inhibition of virus replication. Thus, as was seen with IFN alfa 2a and IFN alfa 2b, the dose of enzymatic nucleic acid could be reduced 3-fold in the presence of CIFN pretreatment to achieve a similar antiviral effect as enzymatic nucleic acid-treatment alone.

To further explore the combination of lower enzymatic nucleic acid concentration and CIFN, a dose response with 0 U/ml to 12.5 U/ml CIFN was subsequently performed in HeLa cells in combination with 50 nM site 195 anti-HCV enzymatic nucleic acid treatment. In multiple experiments, treatment with 50 nM anti-HCV enzymatic nucleic acid alone inhibited HCV-PV replication 50% – 81% compared to viral replication in SAC-treated cells. As for the experiment shown in Figure 31A, treatment with CIFN alone at 5 U/ml resulted in ~50% inhibition of viral replication. However, a four hour pretreatment with 5 U/ml CIFN followed by 50 nM anti-HCV enzymatic nucleic acid treatment resulted in 95% - 97% inhibition compared to SAC-treated cells (P<0.01).

To demonstrate that the enhanced antiviral effect of CIFN and enzymatic nucleic acid combination treatment was dependent upon enzymatic nucleic acid cleavage activity, the effect of CIFN in combination with site 195 anti-HCV enzymatic nucleic acid versus the effect of CIFN in combination with a binding competent, attenuated core, control (BAC) was then compared. The BAC can still bind to its specific RNA target, but is greatly diminished in cleavage activity. Pretreatment with 12.5 U/ml CIFN reduced the viral yield ~90% (7-fold) in cells treated with BAC (compare CIFN versus BAC in Figure 32). Cells treated with 200 nM site 195 anti-HCV enzymatic nucleic acid alone produced ~95% (17-fold) less virus than BAC-treated cells (195 RZ BAC in Figure 32). The combination of CIFN pretreatment and 200 nM site 195 anti-HCV enzymatic nucleic acid results in an augmented >98% (300-fold) reduction in viral yield (CIFN+RZ versus control in Figure 32).

2'-5'-Oligoadenylate Inhibition of HCV

Type 1 Interferon is a key constituent of many effective treatment programs for chronic HCV infection. Treatment with type 1 interferon induces a number of genes and results in an antiviral state within the cell. One of the genes induced is 2', 5' oligoadenylate synthetase, an enzyme that synthesizes short 2', 5' oligoadenylate (2-5A) molecules. Nascent 2-5A subsequently activates a latent RNase, RNase L, which in turn nonspecifically degrades viral RNA. As described herein, ribozymes targeting HCV RNA that inhibit the replication of an HCV-poliovirus (HCV-PV) chimera in cell culture and have shown that this antiviral effect is

augmented if ribozyme is given in combination with type 1 interferon. In addition, the 2-5A component of the interferon response can also inhibit replication of the HCV-PV chimera.

The antiviral effect of anti-HCV ribozyme treatment is enhanced if type 1 interferon is given in combination. Interferon induces a number of gene products including 2',5' oligoadenylate (2-5A) synthetase, double-stranded RNA-activated protein kinase (PKR), and the Mx proteins. Mx proteins appear to interfere with nuclear transport of viral complexes and are not thought to play an inhibitory role in HCV infection. On the other hand, the additional 2-5A-mediated RNA degradation (via RNase L) and/or the inhibition of viral translation by PKR in interferon-treated cells can augment the ribozyme-mediated inhibition of HCV-PV replication.

To investigate the potential role of the 2-5A/RNase L pathway in this enhancement phenomenon, HCV-PV replication was analyzed in HeLa cells treated exogenously with chemically-synthesized analogs of 2-5A (Figure 35), alone and in combination with the anti-HCV ribozyme (RPI 13919). These results were compared to replication in cells treated with interferon and/or anti-HCV ribozyme. Anti-HCV ribozyme was transfected into cells with a cationic lipid. To control for nonspecific effects due to lipid-mediated transfection, a scrambled arm, attenuated core, oligonucleotide (SAC) (RPI 17894) was transfected for comparison. The SAC is the same base composition as the ribozyme but is greatly attenuated in catalytic activity due to changes in the core sequence and cannot bind specifically to the HCV sequence.

As shown in Figure 36A, HeLa cells pretreated with 10 U/ml consensus interferon for 4 hours prior to HCV-PV infection resulted in ~70% reduction of viral replication in SAC-treated cells. Similarly, HeLa cells treated with 100 nM anti-HCV ribozyme for 20 hours after infection resulted in an ~80% reduction in viral yield. This antiviral effect was enhanced to ~98% inhibition in HeLa cells pretreated with interferon for 4 hours before infection and then treated with anti-HCV ribozyme for 20 hours after infection. In parallel, a 2-5A compound (analog I, Figure 35) that was protected from nuclease digestion at the 3'-end with an inverted abasic moiety was tested. As shown in Figure 36B, treatment with 200 nM 2-5A analog I for 4 hours prior to HCV-PV infection only slightly inhibited HCV-PV replication (~20%) in SAC-treated cells. Moreover, the inhibition due to a 20 hour anti-HCV ribozyme treatment was not augmented with a 4 hour pretreatment of 2-5A in combination (compare third bar to fourth bar in Figure 36B).

There are several possible possible explanations why the chemically synthesized 2-5A analog was not able to completely activate RNase L. It is possible that the 2-5A analog was not sufficiently stable or that in this experiment the 4 hour pretreatment period was too short for RNase L activation. To test these possibilities, a 2-5A compound containing a 5'-terminal

thiophosphate (P=S) for added nuclease resistance, in addition to the 3'- abasic, was also included (analog II, Figure 35). In addition, a longer 2-5A treatment was used. In this experiment (Figure 37), HeLa cells were treated with 2-5A or 2-5A(P=S) for 20 hours after HCV-PV infection. Again, anti-HCV ribozyme treatment resulted in >80% inhibition. In contrast to the 20% inhibition of viral replication seen with a 4 hour 2-5A pretreatment, viral replication in cells treated with 2-5A analog I for 20 hours after HCV-PV infection was inhibited by ~70%. The P=S version (analog II) inhibited HCV-PV replication by ~35%. Thus, both 2-5A analogs used here are able to generate an antiviral effect, presumably through RNase L activation. The P=S version, although more resistant to 5' dephosphorylation, did not yield as great an anti-viral effect. It is possible that combination of the 5'-terminal thiophosphate together with the presence of a 3'-inverted abasic moiety can interfere with RNase L activation. Nevertheless, these results demonstrate potent anti-HCV activity by a nuclease-stabilized 2-5A analog.

The level of reduction in HCV-PV replication in cells treated with 2-5A analog I for 20 hours was similar to that in cells pretreated with consensus interferon for 4 hours. To determine if this expanded 2-5A treatment regimen would enhance anti-HCV ribozyme efficacy to the same degree as does the interferon pretreatment, HeLa cells infected with HCV-PV were treated with a combination of 2-5A and anti-HCV ribozyme for 20 hours after infection. In this experiment, a 200 nM treatment with anti-HCV ribozyme or 2-5A treatment alone inhibited viral replication by 88% or ~60%, respectively, compared to SAC treatment (Figure 38, left three bars). To maintain consistent transfection conditions but vary the concentration of anti-HCV ribozyme or 2-5A, anti-HCV ribozyme was mixed with the SAC to maintain a total dose of 200 nM. A 50 nM treatment with anti-HCV ribozyme inhibited HCV-PV replication by ~70% (solid middle bar). However, the amount of HCV-PV replication was not further reduced in cells treated with a combination of 50 nM anti-HCV ribozyme and 150 nM 2-5A (striped middle bar). Likewise, cells treated with 100 nM anti-HCV ribozyme inhibited HCV-PV replication by ~80% whether they were also treated with 100 nM of 2-5A or SAC (right two bars). In contrast, antiviral activity increased from 80% to 98% when 100 nM anti-HCV ribozyme was given in combination with interferon (Figure 36A). The reasons for the lack of additive or synergistic effects for the ribozyme/2-5A combination therapy is unclear at this time but can be due to that fact that both compounds have a similar mechanism of action (degradation of RNA). Further study is warranted to examine this possibility.

As a monotherapy, 2-5A treatment generates a similar inhibitory effect on HCV-poliovirus replication as does interferon treatment. If these results are maintained in HCV patients, treatment with 2-5A can not only be efficacious but can also generate less side

effects than those observed with interferon if the plethora of interferon-induced genes were not activated.

HBV Cell Culture Models

As previously mentioned, HBV does not infect cells in culture. However, transfection of HBV DNA (either as a head-to-tail dimer or as an "overlength" genome of >100%) into HuH7 or Hep G2 hepatocytes results in viral gene expression and production of HBV virions released into the media. Thus, HBV replication competent DNA are co-transfected with ribozymes in cell culture. Such an approach has been used to report intracellular ribozyme activity against HBV (zu Putlitz, et al., 1999, J. Virol., 73, 5381-5387, and Kim et al., 1999, Biochem. Biophys. Res. Commun., 257, 759-765). In addition, stable hepatocyte cell lines have been generated that express HBV. In these cells, only ribozyme need be delivered; however, performance of a delivery screen is required. Intracellular HBV gene expression can be assayed by a Taqman® assay for HBV RNA or by ELISA for HBV protein. Extracellular virus can be assayed by PCR for DNA or ELISA for protein. Antibodies are commercially available for HBV surface antigen and core protein. A secreted alkaline phosphatase expression plasmid can be used to normalize for differences in transfection efficiency and sample recovery.

HBV Animal Models

There are several small animal models to study HBV replication. One is the transplantation of HBV-infected liver tissue into irradiated mice. Viremia (as evidenced by measuring HBV DNA by PCR) is first detected 8 days after transplantation and peaks between 18 – 25 days (Ilan et al., 1999, Hepatology, 29, 553-562).

Transgenic mice that express HBV have also been used as a model to evaluate potential anti-virals. HBV DNA is detectable in both liver and serum (Guidotti et al., 1995, J. Virology, 69, 10, 6158-6169; Morrey et al., 1999, Antiviral Res., 42, 97-108).

An additional model is to establish subcutaneous tumors in nude mice with Hep G2 cells transfected with HBV. Tumors develop in about 2 weeks after inoculation and express HBV surface and core antigens. HBV DNA and surface antigen is also detected in the circulation of tumor-bearing mice (Yao et al., 1996, J. Viral Hepat., 3, 19-22).

In one embodiment, the invention features a mouse, for example a male or female mouse, implanted with HepG2.2.15 cells, wherein the mouse is susceptible to HBV infection and capable of sustaining HBV DNA expression. One embodiment of the invention provides a mouse implanted with HepG2.2.15 cells, wherein said mouse sustains the propagation of

HEPG2.2.15 cells and HBV production (see Macejak, US Provisional Patent Application No. 60/296,876).

Woodchuck hepatitis virus (WHV) is closely related to HBV in its virus structure, genetic organization, and mechanism of replication. As with HBV in humans, persistent WHV infection is common in natural woodchuck populations and is associated with chronic hepatitis and hepatocellular carcinoma (HCC). Experimental studies have established that WHV causes HCC in woodchucks and woodchucks chronically infected with WHV have been used as a model to test a number of anti-viral agents. For example, the nucleoside analogue 3T3 was observed to cause dose dependent reduction in virus (50% reduction after two daily treatments at the highest dose) (Hurwitz et al., 1998. Antimicrob. Agents Chemother., 42, 2804-2809).

HCV Cell Culture Models

Although there have been reports of replication of HCV in cell culture (see below), these systems are difficult to replicate and have proven unreliable. Therefore, as was the case for development of other anti-HCV therapeutics such as interferon and ribavirin, after demonstration of safety in animal studies applicant can proceed directly into a clinical feasibility study.

Several recent reports have documented *in vitro* growth of HCV in human cell lines (Mizutani *et al.*, Biochem Biophys Res Commun 1996 227(3):822-826; Tagawa *et al.*, Journal of Gasteroenterology and Hepatology 1995 10(5):523-527; Cribier *et al.*, Journal of General Virology 76(10):2485-2491; Seipp *et al.*, Journal of General Virology 1997 1997 78(10)2467-2478; Iacovacci *et al.*, Research Virology 1997 148(2):147-151; Iocavacci *et al.*, Hepatology 1997 26(5) 1328-1337; Ito *et al.*, Journal of General Virology 1996 77(5):1043-1054; Nakajima *et al.*, Journal of Virology 1996 70(5):3325-3329; Mizutani *et al.*, Journal of Virology 1996 70(10):7219-7223; Valli *et al.*, Res Virol 1995 146(4): 285-288; Kato *et al.*, Biochem Biophys Res Comm 1995 206(3):863-869). Replication of HCV has been demonstrated in both T and B cell lines as well as cell lines derived from human hepatocytes. Demonstration of replication was documented using either RT-PCR based assays or the b-DNA assay. It is important to note that the most recent publications regarding HCV cell cultures document replication for up to 6-months.

Additionally, another recent study has identified more robust strains of hepatitis C virus having adaptive mutations that allow the strains to replicate more vigorously in human cell culture. The mutations that confer this enhanced ability to replicate are located in a specific region of a protein identified as NS5A. Studies performed at Rockefeller University have shown that in certain cell culture systems, infection with the robust strains produces a 10,000-

fold increase in the number of infected cells. The greatly increased availability of HCV-infected cells in culture can be used to develop high-throughput screening assays, in which a large number of compounds, such as enzymatic nucleic acid molecules, can be tested to determine their effectiveness.

In addition to cell lines that can be infected with HCV, several groups have reported the successful transformation of cell lines with cDNA clones of full-length or partial HCV genomes (Harada et al., Journal of General Virology 1995 76(5)1215-1221; Haramatsu et al., Journal of Viral Hepatitis 1997 4S(1):61-67; Dash et al., American Journal of Pathology 1997 151(2):363-373; Mizuno et al., Gasteroenterology 1995 109(6):1933-40; Yoo et al., Journal Of Virology 1995 69(1):32-38).

HCV Animal Models

The best characterized animal system for HCV infection is the chimpanzee. Moreover, the chronic hepatitis that results from HCV infection in chimpanzees and humans is very similar. Although clinically relevant, the chimpanzee model suffers from several practical impediments that make use of this model difficult. These include; high cost, long incubation requirements and lack of sufficient quantities of animals. Due to these factors, a number of groups have attempted to develop rodent models of chronic hepatitis C infection. While direct infection has not been possible several groups have reported on the stable transfection of either portions or entire HCV genomes into rodents (Yamamoto et al., Hepatology 1995 22(3): 847-855; Galun et al., Journal of Infectious Disease 1995 172(1):25-30; Koike et al., Journal of general Virology 1995 76(12)3031-3038; Pasquinelli et al., Hepatology 1997 25(3): 719-727; Hayashi et al., Princess Takamatsu Symp 1995 25:1430149; Mariya K. Yotsuyanagi H, Shintani Y, Fujie H, Ishibashi K, Matsuura Y, Miyamura T, Koike K. Hepatitis C virus core protein induces hepatic steatosis in transgenic mice. Journal of General Virology 1997 78(7) 1527-1531; Takehara et al., Hepatology 1995 21(3):746-751; Kawamura et al., Hepatology 1997 25(4): 1014-1021). In addition, transplantation of HCV infected human liver into immunocompromised mice results in prolonged detection of HCV RNA in the animal's blood.

Vierling, International PCT Publication No. WO 99/16307, describes a method for expressing hepatitis C virus in an *in vivo* animal model. Viable, HCV infected human hepatocytes are transplanted into a liver parenchyma of a scid/scid mouse host. The scid/scid mouse host is then maintained in a viable state, whereby viable, morphologically intact human hepatocytes persist in the donor tissue and hepatitis C virus is replicated in the persisting human hepatocytes. This model provides an effective means for the study of HCV inhibition by enzymatic nucleic acids *in vivo*.

Indications

Particular degenerative and disease states that can be associated with HBV expression modulation include, but are not limited to, HBV infection, hepatitis, cancer, tumorigenesis, cirrhosis, liver failure and other conditions related to the level of HBV.

Particular degenerative and disease states that can be associated with HCV expression modulation include, but are not limited to, HCV infection, hepatitis, cancer, tumorigenesis, cirrhosis, liver failure and other conditions related to the level of HCV.

The present body of knowledge in HBV and HCV research indicates the need for methods to assay HBV or HCV activity and for compounds that can regulate HBV and HCV expression for research, diagnostic, and therapeutic use.

Lamivudine (3TC®), L-FMAU, adefovir dipivoxil, type 1 Interferon (e.g., interferon alpha, interferon beta, consensus interferon, polyethylene glycol interferon, polyethylene glycol interferon alpha 2a, polyethylene glycol interferon 2b, and polyethylene glycol consensus interferon), therapeutic vaccines, steriods, and 2'-5' Oligoadenylates are non-limiting examples of pharmaceutical agents that can be combined with or used in conjunction with the nucleic acid molecules (e.g. ribozymes and antisense molecules) of the instant invention. Those skilled in the art will recognize that other drugs or other therapies can similarly and readily be combined with the nucleic acid molecules of the instant invention (e.g. ribozymes and antisense molecules) and are, therefore, within the scope of the instant invention.

Diagnostic uses

The nucleic acid molecules of this invention can be used as diagnostic tools to examine genetic drift and mutations within diseased cells or to detect the presence of HBV or HCV RNA in a cell. For example, the close relationship between enzymatic nucleic acid activity and the structure of the target RNA allows the detection of mutations in any region of the molecule which alters the base-pairing and three-dimensional structure of the target RNA. By using multiple enzymatic nucleic acids described in this invention, one can map nucleotide changes which are important to RNA structure and function *in vitro*, as well as in cells and tissues. Cleavage of target RNAs with enzymatic nucleic acids can be used to inhibit gene expression and define the role (essentially) of specified gene products in the progression of disease. In this manner, other genetic targets can be defined as important mediators of the disease. These experiments can lead to better treatment of the disease progression by affording the possibility of combinational therapies (e.g., multiple enzymatic nucleic acid molecules targeted to different genes, enzymatic nucleic acid molecules coupled

with known small molecule inhibitors, or intermittent treatment with combinations of enzymatic nucleic acid molecules and/or other chemical or biological molecules). Other *in vitro* uses of enzymatic nucleic acid moleculesof this invention are well known in the art, and include detection of the presence of mRNAs associated with HBV or HCV-related condition. Such RNA is detected by determining the presence of a cleavage product after treatment with an enzymatic nucleic acid using standard methodology.

In a specific example, enzymatic nucleic acid molecules which can cleave only wildtype or mutant forms of the target RNA are used for the assay. The first enzymatic nucleic acid is used to identify wild-type RNA present in the sample and the second enzymatic nucleic acid is used to identify mutant RNA in the sample. As reaction controls, synthetic substrates of both wild-type and mutant RNA can be cleaved by both enzymatic nucleic acid molecules to demonstrate the relative ribozyme efficiencies in the reactions and the absence of cleavage of the "non-targeted" RNA species. The cleavage products from the synthetic substrates can also serve to generate size markers for the analysis of wild-type and mutant RNAs in the sample population. Thus each analysis involves two enzymatic nucleic acid molecules, two substrates and one unknown sample which is combined into six reactions. The presence of cleavage products is determined using an RNAse protection assay so that full-length and cleavage fragments of each RNA can be analyzed in one lane of a polyacrylamide gel. It is not absolutely required to quantify the results to gain insight into the expression of mutant RNAs and putative risk of the desired phenotypic changes in target cells. The expression of mRNA whose protein product is implicated in the development of the phenotype (i.e., HBV or HCV) is adequate to establish risk. If probes of comparable specific activity are used for both transcripts, then a qualitative comparison of RNA levels is adequate and will decrease the cost of the initial diagnosis. Higher mutant form to wild-type ratios are correlated with higher risk whether RNA levels are compared qualitatively or quantitatively.

Additional Uses

Potential usefulness of sequence-specific enzymatic nucleic acid molecules of the instant invention have many of the same applications for the study of RNA that DNA restriction endonucleases have for the study of DNA (Nathans et al., 1975 Ann. Rev. Biochem. 44:273). For example, the pattern of restriction fragments can be used to establish sequence relationships between two related RNAs, and large RNAs can be specifically cleaved to fragments of a size more useful for study. The ability to engineer sequence specificity of the enzymatic nucleic acid molecule is ideal for cleavage of RNAs of unknown sequence. Applicant describes the use of nucleic acid molecules to down-regulate gene

expression of target genes in bacterial, microbial, fungal, viral, and eukaryotic systems including plant, or mammalian cells.

All patents and publications mentioned in the specification are indicative of the levels of skill of those skilled in the art to which the invention pertains. All references cited in this disclosure are incorporated by reference to the same extent as if each reference had been incorporated by reference in its entirety individually.

One skilled in the art would readily appreciate that the present invention is well adapted to carry out the objects and obtain the ends and advantages mentioned, as well as those inherent therein. The methods and compositions described herein as presently representative of preferred embodiments are exemplary and are not intended as limitations on the scope of the invention. Changes therein and other uses will occur to those skilled in the art, which are encompassed within the spirit of the invention, are defined by the scope of the claims.

It will be readily apparent to one skilled in the art that varying substitutions and modifications may be made to the invention disclosed herein without departing from the scope and spirit of the invention. Thus, such additional embodiments are within the scope of the present invention and the following claims.

The invention illustratively described herein suitably can be practiced in the absence of any element or elements, limitation or limitations that are not specifically disclosed herein. Thus, for example, in each instance herein any of the terms "comprising", "consisting essentially of" and "consisting of" may be replaced with either of the other two terms. The terms and expressions which have been employed are used as terms of description and not of limitation, and there is no intention that in the use of such terms and expressions of excluding any equivalents of the features shown and described or portions thereof, but it is recognized that various modifications are possible within the scope of the invention claimed. Thus, it should be understood that although the present invention has been specifically disclosed by preferred embodiments, optional features, modification and variation of the concepts herein disclosed may be resorted to by those skilled in the art, and that such modifications and variations are considered to be within the scope of this invention as defined by the description and the appended claims.

In addition, where features or aspects of the invention are described in terms of Markush groups or other grouping of alternatives, those skilled in the art will recognize that the invention is also thereby described in terms of any individual member or subgroup of members of the Markush group or other group.

TABLE I

Characteristics of naturally occurring ribozymes

Group I Introns

- Size: ~150 to >1000 nucleotides.
- Requires a U in the target sequence immediately 5' of the cleavage site.
- Binds 4-6 nucleotides at the 5'-side of the cleavage site.
- Reaction mechanism: attack by the 3'-OH of guanosine to generate cleavage products with 3'-OH and 5'-guanosine.
- Additional protein cofactors required in some cases to help folding and maintainance of the active structure.
- Over 300 known members of this class. Found as an intervening sequence in Tetrahymena thermophila rRNA, fungal mitochondria, chloroplasts, phage T4, bluegreen algae, and others.
- Major structural features largely established through phylogenetic comparisons, mutagenesis, and biochemical studies [i,ii].
- Complete kinetic framework established for one ribozyme [iii, iv, v, vi].
- Studies of ribozyme folding and substrate docking underway [vii, viii, ix].
- Chemical modification investigation of important residues well established [x,xi].
- The small (4-6 nt) binding site may make this ribozyme too non-specific for targeted RNA cleavage, however, the Tetrahymena group I intron has been used to repair a "defective" β-galactosidase message by the ligation of new β-galactosidase sequences onto the defective message [xii].

RNAse P RNA (M1 RNA)

- Size: ~290 to 400 nucleotides.
- RNA portion of a ubiquitous ribonucleoprotein enzyme.

- Cleaves tRNA precursors to form mature tRNA [xiii].
- Reaction mechanism: possible attack by M²⁺-OH to generate cleavage products with 3'-OH and 5'-phosphate.
- RNAse P is found throughout the prokaryotes and eukaryotes. The RNA subunit has been sequenced from bacteria, yeast, rodents, and primates.
- Recruitment of endogenous RNAse P for therapeutic applications is possible through hybridization of an External Guide Sequence (EGS) to the target RNA [xiv,xv]
- Important phosphate and 2' OH contacts recently identified [xvi,xvii]

Group II Introns

- Size: >1000 nucleotides.
- Trans cleavage of target RNAs recently demonstrated [xviii,xix].
- Sequence requirements not fully determined.
- Reaction mechanism: 2'-OH of an internal adenosine generates cleavage products with 3'-OH and a "lariat" RNA containing a 3'-5' and a 2'-5' branch point.
- Only natural ribozyme with demonstrated participation in DNA cleavage [xx,xxi] in addition to RNA cleavage and ligation.
- Major structural features largely established through phylogenetic comparisons [xxii].
- Important 2' OH contacts beginning to be identified [xxiii]
- Kinetic framework under development [xxiv]

Neurospora VS RNA

- Size: ~144 nucleotides.
- Trans cleavage of hairpin target RNAs recently demonstrated [xxv].

- Sequence requirements not fully determined.
- Reaction mechanism: attack by 2'-OH 5' to the scissile bond to generate cleavage products with 2',3'-cyclic phosphate and 5'-OH ends.
- Binding sites and structural requirements not fully determined.
- Only 1 known member of this class. Found in Neurospora VS RNA.

Hammerhead Ribozyme

(see text for references)

- Size: ~13 to 40 nucleotides.
- Requires the target sequence UH immediately 5¹ of the cleavage site.
- Binds a variable number nucleotides on both sides of the cleavage site.
- Reaction mechanism: attack by 2'-OH 5' to the scissile bond to generate cleavage products with 2',3'-cyclic phosphate and 5'-OH ends.
- 14 known members of this class. Found in a number of plant pathogens (virusoids) that use RNA as the infectious agent.
- Essential structural features largely defined, including 2 crystal structures [xxvi,xxvii]
- Minimal ligation activity demonstrated (for engineering through in vitro selection)
 [xxviii]
- Complete kinetic framework established for two or more ribozymes [xxix].
- Chemical modification investigation of important residues well established [xxx].

Hairpin Ribozyme

- Size: ~50 nucleotides.
- Requires the target sequence GUC immediately 3' of the cleavage site.

Binds 4-6 nucleotides at the 5'-side of the cleavage site and a variable number to the 3'side of the cleavage site.

- Reaction mechanism: attack by 2'-OH 5' to the scissile bond to generate cleavage products with 2',3'-cyclic phosphate and 5'-OH ends.
- 3 known members of this class. Found in three plant pathogen (satellite RNAs of the tobacco ringspot virus, arabis mosaic virus and chicory yellow mottle virus) which uses RNA as the infectious agent.
- Essential structural features largely defined [xxxi,xxxii,xxxii,xxxiii,xxxiv]
- Ligation activity (in addition to cleavage activity) makes ribozyme amenable to engineering through in vitro selection [xxxv]
- Complete kinetic framework established for one ribozyme [xxxvi].
- Chemical modification investigation of important residues begun [xxxviii xxxviii].

Hepatitis Delta Virus (HDV) Ribozyme

- Size: ~60 nucleotides.
- Trans cleavage of target RNAs demonstrated [xxxix].
- Binding sites and structural requirements not fully determined, although no sequences
 5' of cleavage site are required. Folded ribozyme contains a pseudoknot structure [xl].
- Reaction mechanism: attack by 2'-OH 5' to the scissile bond to generate cleavage products with 2',3'-cyclic phosphate and 5'-OH ends.
- Only 2 known members of this class. Found in human HDV.
- xiiCircular form of HDV is active and shows increased nuclease stability [xlii]

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Table Π :

A. 2.5 µmol Synthesis Cycle ABI 394 Instrument

Reagent	Equivalents	Amount	Wait Time* DNA	Wait Time* 2'-O-methyl	Wait Time*RNA
Phosphoramidites	6.5	163 µL	45 sec	2.5 min	7.5 min
S-Ethyl Tetrazole	23.8	238 µL	45 sec	2.5 min	7.5 min
Acetic Anhydride	100	233 µL	5 sec	5 sec	5 sec
N-Methyl Imidazole	186	233 µL	5 sec	5 sec	5 sec
TCA	176	2.3 mL	21 sec	21 sec	21 sec
Iodine	11.2	1.7 mL	45 sec	45 sec	45 sec
Beaucage	12.9	645 µL	100 sec	300 sec	300 sec
Acetonitrile	NA	6.67 mL	NA	NA	NA NA

B. $0.2\,\mu mol$ Synthesis Cycle ABI 394 Instrument

Reagent	Equivalents	Amount	Wait Time* DNA	Wait Time* 2'-O-methyl	Wait Time*RNA
Phosphoramidites	15	31 µL	45 sec	233 sec	465 sec
S-Ethyl Tetrazole	38.7	31 µL	. 45 sec	233 min	465 sec
Acetic Anhydride	655	124 µL	5 sec	5 sec	5 sec
N-Methyl Imidazole	1245	124 μL	5 sec	5 sec	5 sec
TCA	700	732 µL	10 sec	10 sec	10 sec
lodine	20.6	244 µL	15 sec	15 sec	15 sec
Beaucage	7.7	232 µL	100 sec	300 sec	300 sec
Acetonitrile	NA	2.64 mL	NA	NA	NA

C. $0.2\,\mu mol\,Synthesis\,Cycle\,96$ well Instrument

Reagent	Equivalents:DNA/ 2'-O-methyl/Ribo	Amount: DNA/2'-O- methyl/Ribo	Wait Time* DNA	Wait Time* 2'-O- methyl	Wait Time* Ribo
Phosphoramidites	22/33/66	40/60/120 μL	60 sec	180 sec	360sec
S-Ethyl Tetrazole	70/105/210	40/60/120 μL	60 sec	180 min	360 sec
Acetic Anhydride	265/265/265	50/50/50 μL	10 sec	10 sec	10 sec
N-Methyl Imidazole	502/502/502	50/50/50 μL	10 sec	10 sec	10 sec
TCA	238/475/475	250/500/500 μL	15 sec	15 sec	15 sec
lodine	6.8/6.8/6.8	80/80/80 µL	30 sec	30 sec	30 sec
Beaucage	34/51/51	80/120/120	100 sec	200 sec	200 sec
Acetonitrile	NA	1150/1150/1150 µL	NA	NA	NA

Wait time does not include contact time during delivery.

Table III: HBV Strains and Accession numbers

Accession Number	NAME
AF100308.1	AF100308 Hepatitis B virus strain 2-18, complete
AB026815.1	AB026815 Hepatitis B virus DNA, complete genome,
AB033559.1	AB033559 Hepatitis B virus DNA, complete genome,
AB033558.1	AB033558 Hepatitis B virus DNA, complete genome,
AB033557.1	AB033557 Hepatitis B virus DNA, complete genome,
AB033556.1	AB033556 Hepatitis B virus DNA, complete genome,
AB033555.1	AB033555 Hepatitis B virus DNA, complete genome,
AB033554.1	AB033554 Hepatitis B virus DNA, complete genome,
AB033553.1	AB033553 Hepatitis B virus DNA, complete genome,
AB033552.1	AB033552 Hepatitis B virus DNA, complete genome,
AB033551.1	AB033551 Hepatitis B virus DNA, complete genome,
AB033550.1	AB033550 Hepatitis B virus DNA, complete genome
AF143308.1	AF143308 Hepatitis B virus clone WB1254, complete
AF143307.1	AF143307 Hepatitis B virus clone RM518, complete
AF143306.1	AF143306 Hepatitis B virus clone RM517, complete
AF143305.1	AF143305 Hepatitis B virus clone RM501, complete
AF143304.1	AF143304 Hepatitis B virus clone HD319, complete
AF143303.1	AF143303 Hepatitis B virus clone HD1406, complete
AF143302.1	AF143302 Hepatitis B virus clone HD1402, complete
AF143301.1	AF143301 Hepatitis B virus clone BW1903, complete
AF143300.1	AF143300 Hepatitis B virus clone 7832-G4, complete
AF143299.1	AF143299 Hepatitis B virus clone 7744-G9, complete
AF143298.1	AF143298 Hepatitis B virus clone 7720-G8, complete
AB026814.1	AB026814 Hepatitis B virus DNA, complete genome,
AB026813.1	AB026813 Hepatitis B virus DNA, complete genome,
AB026812.1	AB026812 Hepatitis B virus DNA, complete genome,
AB026811.1	AB026811 Hepatitis B virus DNA, complete genome,
AJ131956.1	HBV131956 Hepatitis B virus complete genome,
AF151735.1	AF151735 Hepatitis B virus, complete genome
AF090842.1	AF090842 Hepatitis B virus strain G5.27295, complete
AF090841.1	AF090841 Hepatitis B virus strain G4.27241, complete
AF090840.1	AF090840 Hepatitis B virus strain G3.27270, complete
AF090839.1	AF090839 Hepatitis B virus strain G2.27246, complete
AF090838.1	AF090838 Hepatitis B virus strain P1.27239, complete
Y18858.1	HBV18858 Hepatitis B virus complete genome, isolate
Y18857.1	HBV18857 Hepatitis B virus complete genome, isolate
D12980.1	HPBCG Hepatitis B virus subtype adr(SRADR) DNA,
Y18856.1	HBV18856 Hepatitis B virus complete genome, isolate
Y18855.1	HBV18855 Hepatitis B virus complete genome, isolate
AJ131133.1	HBV131133 Hepatitis B virus, complete genome, strain
X80925.1	HBVP6PCXX Hepatitis B virus (patient 6) complete
X80926.1	HBVP5PCXX Hepatitis B virus (patient 5) complete
X80924.1	HBVP4PCXX Hepatitis B virus (patient 4) complete

AF100309.1	Hepatitis B virus strain 56, complete genome
AF068756.1	AF068756 Hepatitis B virus, complete genome
AF043593.1	AF043593 Hepatitis B virus isolate 6/89, complete
Y07587.1	HBVAYWGEN Hepatitis B virus, complete genome
D28880.1	D28880 Hepatitis B virus DNA, complete genome, strain
X98076.1	HBVDEFVP3 Hepatitis B virus complete genome with
X98075.1	HBVDEFVP2 Hepatitis B virus complete genome with
X98074.1	HBVDEFVP1 Hepatitis B virus complete genome with
X98077.1	HBVCGWITY Hepatitis B virus complete genome, wild type
X98072.1	HBVCGINSC Hepatitis B virus complete genome with
X98073.1	HBVCGINCX Hepatitis B virus complete genome with
U95551.1	U95551 Hepatitis B virus subtype ayw, complete genome
D23684.1	HPBC6T588 Hepatitis B virus (C6-TKB588) complete genome
D23683.1	HPBC5HKO2 Hepatitis B virus (C5-HBVKO2) complete genome
D23682.1	HPBB5HKO1 Hepatitis B virus (B5-HBVKO1) complete genome
D23681.1	HPBC4HST2 Hepatitis B virus (C4-HBVST2) complete genome
D23680.1	HPBB4HST1 Hepatitis B virus (B4-HBVST1) complete genome
D00331.1	HPBADW3 Hepatitis B virus genome, complete genome
D00330.1	HPBADW2 Hepatitis B virus genome, complete genome
D50489.1	HPBA11A Hepatitis B virus DNA, complete genome
D23679.1	HPBA3HMS2 Hepatitis B virus (A3-HBVMS2) complete genome
D23678.1	HPBA2HYS2 Hepatitis B virus (A2-HBVYS2) complete genome
D23677.1	HPBA1HKK2 Hepatitis B virus (A1-HBVKK2) complete genome
D16665.1	HPBADRM Hepatitis B virus DNA, complete genome
D00329.1	HPBADW1 Hepatitis B virus (HBV) genome, complete genome
X97851.1	HBVP6CSX Hepatitis B virus (patient 6) complete genome
X97850.1	HBVP4CSX Hepatitis B virus (patient 4) complete genome
X97849.1	HBVP3CSX Hepatitis B virus (patient 3) complete genome
X97848.1	HBVP2CSX Hepatitis B virus (patient 2) complete genome
X51970.1	HVHEPB Hepatitis B virus (HBV 991) complete genome
M38636.1	HPBCGADR Hepatitis B virus, subtype adr, complete genome
X59795.1	HBVAYWMCG Hepatitis B virus (ayw subtype mutant)
M38454.1	HPBADR1CG Hepatitis B virus , complete genome
M32138.1	HPBHBVAA Hepatitis B virus variant HBV-alpha1, complete
J02203.1	HPBAYW Human hepatitis B virus (subtype ayw), complete
M12906.1	HPBADRA Hepatitis B virus subtype adr, complete genome
M54923.1	HPBADWZ Hepatitis B virus (subtype adw), complete genome
L27106.1	HPBMUT Hepatitis B virus mutant complete genome

Table IV: HBV Substrate Sequence

NT Position*	SUBSTRATE	SEQ ID
82	CUAUCGUCCCCUUCUUCAUC	1.
101	CUACCGUUCCGGCC	2.
159	CUUCUCAUCU	3.
184	CUUCCCUUCACCAC	4.
269	GACUCUCAGAAUGUCAACGAC	5.
381	CUGUAGGCAUAAAUGGUCUG	6.
401	GUUCACCAGCACCAUGCAACUUUUU	7.
424	UUUCACGUCUGCCUAAUCAUC	8.
524	AUUUGGAGCUUC	9.
562	CUGACUUCUUUCCUUCUAUUC	10.
649	CUCACCAUACCGCACUCA	11.
667	GGCAAGCUAUUCUGUG	12.
717	GGAAGUAAUUUGGAAGAC	13.
758	CAGCUAUGUCAAUGUUAA	14.
783	CUAAAAUCGGCCUAAAAUCAGAC	15.
812	CAUUUCCUGUCUCACUUUUGGAAGAG	16.
887	UCCUGCUUACAGAC	17.
922	CAACACUUCCGGAAACUACUGUUGUUAG	18.
989	CUCGCCUCGCAGACGAAGGUCUC	19.
1009	CAAUCGCCGCGUCGCAGAAG	. 20.
1031	AUCUCAAUCUCGGGAAUCUCAA	21.
1052	AUGUUAGUAUCCCUUGGACUC	22.
1072	CAUAAGGUGGGAAACUUUACUG	23.
1109	CUGUACCUAUUCUUUAAAUCC	24.
1127	CUGAGUGGCAAACUCCC	25.
1271	CCAAAUAUCUGCCCUUGGACAA	26.
1297	AUUAAACCAUAUUAUCCUGAACA	27.
1319	AUGCAGUUAAUCAUUACUUCAAAACUA	28.
1340	AAACUAGGCAUUA	29.
1370	AGGCGGCAUUCUAUAUAAGAGAG	30.
1393	GAAACUACGCGCAGCGCCUCAUUUUGU	31.
1412	CAUUUUGUGGGUCACCAUA	32.
1441	CAAGAGCUACAGCAUGGG	33.

LOCUS	HPBADR1CG		3221	br	DNA.	circular	VRL
06-MAR-1995							
DEFINITION	Hepatitis	В	virus	,	complete	genome.	
ACCESSION	M38454						

^{*}The nucleotide number referred to in that table is the position of the 5' end of the oligo in this sequence.

TABLE V: HUMAN HBV HAMMERHEAD RIBOZYME AND TARGET SEQUENCE

Pos	Substrate	Seq	Hammerhead	Seq
	COLORD CV. V. HOCK COL.	ID	THIOGUAGA CUCANICAG COCCUNIACCO COAA ACUCCUICO	ID
13	CCACCACU U UCCACCAA	34	UUGGUGGA CUGAUGAG GCCGUUAGGC CGAA AGUGGUGG	7434
14	CACCACUU U CCACCAAA	35	UUUGGUGG CUGAUGAG GCCGUUAGGC CGAA AAGUGGUG	7435
15	ACCACUUU C CACCAAAC	36	GUUUGGUG CUGAUGAG GCCGUUAGGC CGAA AAAGUGGU	7436
25	ACCAAACU C UUCAAGAU	37	AUCUUGAA CUGAUGAG GCCGUUAGGC CGAA AGUUUGGU	7437
27	CAAACUCU U CAAGAUCC	38	GGAUCUUG CUGAUGAG GCCGUUAGGC CGAA AGAGUUUG	7438
28	AAACUCUU C AAGAUCCC	39	GGGAUCUU CUGAUGAG GCCGUUAGGC CGAA AAGAGUUU	7439
34	UUCAAGAU C CCAGAGUC	40	GACUCUGG CUGAUGAG GCCGUUAGGC CGAA AUCUUGAA	7440
42	CCCAGAGU C AGGGCCCU	41	AGGGCCCU CUGAUGAG GCCGUUAGGC CGAA ACUCUGGG	7441
53	GGCCCUGU A CUUUCCUG	42	CAGGAAAG CUGAUGAG GCCGUUAGGC CGAA ACAGGGCC	7442
56	CCUGUACU U UCCUGCUG	43	CAGCAGGA CUGAUGAG GCCGUUAGGC CGAA AGUACAGG	7443
57	CUGUACUU U CCUGCUGG	44	CCAGCAGG CUGAUGAG GCCGUUAGGC CGAA AAGUACAG	7444
58	UGUACUUU C CUGCUGGU	45	ACCAGCAG CUGAUGAG GCCGUUAGGC CGAA AAAGUACA	7445
71	UGGUGGCU C CAGUUCAG	46	CUGAACUG CUGAUGAG GCCGUUAGGC CGAA AGCCACCA	7446
76	GCUCCAGU U CAGGAACA	47	UGUUCCUG CUGAUGAG GCCGUUAGGC CGAA ACUGGAGC	7447
77	CUCCAGUU C AGGAACAG	48	CUGUUCCU CUGAUGAG GCCGUUAGGC CGAA AACUGGAG	7448
97	GCCCUGCU C AGAAUACU	49	AGUAUUCU CUGAUGAG GCCGUUAGGC CGAA AGCAGGGC	7449
103	CUCAGAAU A CUGUCUCU	50	AGAGACAG CUGAUGAG GCCGUUAGGC CGAA AUUCUGAG	7450
108	AAUACUGU C UCUGCCAU	51	AUGGCAGA CUGAUGAG GCCGUUAGGC CGAA ACAGUAUU	7451
110	UACUGUCU C UGCCAUAU	52	AUAUGGCA CUGAUGAG GCCGUUAGGC CGAA AGACAGUA	7452
117	UCUGCCAU A UCGUCAAU	53	AUUGACGA CUGAUGAG GCCGUUAGGC CGAA AUGGCAGA	7453
119	UGCCAUAU C GUCAAUCU	54	AGAUUGAC CUGAUGAG GCCGUUAGGC CGAA AUAUGGCA	7454
122	CAUAUCGU C AAUCUUAU	55	AUAAGAUU CUGAUGAG GCCGUUAGGC CGAA ACGAUAUG	7455
126	UCGUCAAU C UUAUCGAA	56	UUCGAUAA CUGAUGAG GCCGUUAGGC CGAA AUUGACGA	7456
128	GUCAAUCU U AUCGAAGA	57	UCUUCGAU CUGAUGAG GCCGUUAGGC CGAA AGAUUGAC	7457
129	UCAAUCUU A UCGAAGAC	58	GUCUUCGA CUGAUGAG GCCGUUAGGC CGAA AAGAUUGA	7458
131	AAUCUUAU C GAAGACUG	59	CAGUCUUC CUGAUGAG GCCGUUAGGC CGAA AUAAGAUU	7459
150	GACCCUGU A CCGAACAU	60	AUGUUCGG CUGAUGAG GCCGUUAGGC CGAA ACAGGGUC	7460
168	GAGAACAU C GCAUCAGG	61	CCUGAUGC CUGAUGAG GCCGUUAGGC CGAA AUGUUCUC	7461
173	CAUCGCAU C AGGACUCC	62	GGAGUCCU CUGAUGAG GCCGUUAGGC CGAA AUGCGAUG	7462
180	UCAGGACU C CUAGGACC	63	GGUCCUAG CUGAUGAG GCCGUUAGGC CGAA AGUCCUGA	7463
183	GGACUCCU A GGACCCCU	64	AGGGGUCC CUGAUGAG GCCGUUAGGC CGAA AGGAGUCC	7464
195	CCCCUGCU C GUGUUACA	65	UGUAACAC CUGAUGAG GCCGUUAGGC CGAA AGCAGGGG	7465
200	GCUCGUGU U ACAGGCGG	66	CCGCCUGU CUGAUGAG GCCGUUAGGC CGAA ACACGAGC	7466
201	CUCGUGUU A CAGGCGGG	67	CCCGCCUG CUGAUGAG GCCGUUAGGC CGAA AACACGAG	7467
212	GGCGGGGU U UUUCUUGU	68	ACAAGAAA CUGAUGAG GCCGUUAGGC CGAA ACCCCGCC	7468
213	GCGGGGUU U UUCUUGUU	69	AACAAGAA CUGAUGAG GCCGUUAGGC CGAA AACCCCGC	7469
214	CGGGGUUU U UCUUGUUG	70	CAACAAGA CUGAUGAG GCCGUUAGGC CGAA AAACCCCG	7470
215	GGGGUUUU U CUUGUUGA	71	UCAACAAG CUGAUGAG GCCGUUAGGC CGAA AAAACCCC	7471
216	GGGUUUUU C UUGUUGAC	72	GUCAACAA CUGAUGAG GCCGUUAGGC CGAA AAAAACCC	7472
218	GUUUUUCU U GUUGACAA	73	UUGUCAAC CUGAUGAG GCCGUUAGGC CGAA AGAAAAAC	7473
221	UUUCUUGU U GACAAAA	74	UUUUUGUC CUGAUGAG GCCGUUAGGC CGAA ACAAGAAA	7474
231	ACAAAAAU C CUCACAAU	75	AUUGUGAG CUGAUGAG GCCGUUAGGC CGAA AUUUUUGU	7475
234	AAAAUCCU C ACAAUACC	76	GGUAUUGU CUGAUGAG GCCGUUAGGC CGAA AGGAUUUU	7476
240	CUCACAAU A CCACAGAG	77	CUCUGUGG CUGAUGAG GCCGUUAGGC CGAA AUUGUGAG	7477
250	CACAGAGU C UAGACUCG	78	CGAGUCUA CUGAUGAG GCCGUUAGGC CGAA ACUCUGUG	7478
252	CAGAGUCU A GACUCGUG	79	CACGAGUC CUGAUGAG GCCGUUAGGC CGAA AGACUCUG	7479

				
257	UCUAGACU C GUGGUGGA	80	UCCACCAC CUGAUGAG GCCGUUAGGC CGAA AGUCUAGA	7480
268	GGUGGACU U CUCUCAAU	81	AUUGAGAG CUGAUGAG GCCGUUAGGC CGAA AGUCCACC	7481
269	GUGGACUU C UCUCAAUU	82	AAUUGAGA CUGAUGAG GCCGUUAGGC CGAA AAGUCCAC	7482
271	GGACUUCU C UCAAUUUU	83	AAAAUUGA CUGAUGAG GCCGUUAGGC CGAA AGAAGUCC	7483
273	ACUUCUCU C AAUUUUCU	84	AGAAAAUU CUGAUGAG GCCGUUAGGC CGAA AGAGAAGU	7484
277	CUCUCAAU U UUCUAGGG	85	CCCUAGAA CUGAUGAG GCCGUUAGGC CGAA AUUGAGAG	7485
278	UCUCAAUU U UCUAGGGG	86	CCCCUAGA CUGAUGAG GCCGUUAGGC CGAA AAUUGAGA	7486
279	CUCAAUUU U CUAGGGGG	87	CCCCCUAG CUGAUGAG GCCGUUAGGC CGAA AAAUUGAG	7487
280	UCAAUUUU C UAGGGGGA	88	UCCCCCUA CUGAUGAG GCCGUUAGGC CGAA AAAAUUGA	7488
282	AAUUUUCU A GGGGGAAC	89	GUUCCCCC CUGAUGAG GCCGUUAGGC CGAA AGAAAAUU	7489
301	CCGUGUGU C UUGGCCAA	90	UUGGCCAA CUGAUGAG GCCGUUAGGC CGAA ACACACGG	7490
303	GUGUGUCU U GGCCAAAA	91	UUUUGGCC CUGAUGAG GCCGUUAGGC CGAA AGACACAC	7491
313	GCCAAAAU U CGCAGUCC	92	GGACUGCG CUGAUGAG GCCGUUAGGC CGAA AUUUUGGC	7492
314	CCAAAAUU C GCAGUCCC	93	GGGACUGC CUGAUGAG GCCGUUAGGC CGAA AAUUUUGG	7493
320	UUCGCAGU C CCAAAUCU	94	AGAUUUGG CUGAUGAG GCCGUUAGGC CGAA ACUGCGAA	7494
327	UCCCAAAU C UCCAGUCA	95	UGACUGGA CUGAUGAG GCCGUUAGGC CGAA AUUUGGGA	7495
329	CCAAAUCU C CAGUCACU	96	AGUGACUG CUGAUGAG GCCGUUAGGC CGAA AGAUUUGG	7496
334	UCUCCAGU C ACUCACCA	97	UGGUGAGU CUGAUGAG GCCGUUAGGC CGAA ACUGGAGA	7497
338	CAGUCACU C ACCAACCU	98	AGGUUGGU CUGAUGAG GCCGUUAGGC CGAA AGUGACUG	7498
349	CAACCUGU U GUCCUCCA	99	UGGAGGAC CUGAUGAG GCCGUUAGGC CGAA ACAGGUUG	7499
352	CCUGUUGU C CUCCAAUU	100	AAUUGGAG CUGAUGAG GCCGUUAGGC CGAA ACAACAGG	7500
355	GUUGUCCU C CAAUUUGU	101	ACAAAUUG CUGAUGAG GCCGUUAGGC CGAA AGGACAAC	7501
360	CCUCCAAU U UGUCCUGG	102	CCAGGACA CUGAUGAG GCCGUUAGGC CGAA AUUGGAGG	7502
361	CUCCAAUU U GUCCUGGU	103	ACCAGGAC CUGAUGAG GCCGUUAGGC CGAA AAUUGGAG	7503
364	CAAUUUGU C CUGGUUAU	104	AUAACCAG CUGAUGAG GCCGUUAGGC CGAA ACAAAUUG	7504
370	GUCCUGGU U AUCGCUGG	105	CCAGCGAU CUGAUGAG GCCGUUAGGC CGAA ACCAGGAC	7505
371	UCCUGGUU A UCGCUGGA	106	UCCAGCGA CUGAUGAG GCCGUUAGGC CGAA AACCAGGA	7506
373	CUGGUUAU C GCUGGAUG	107	CAUCCAGC CUGAUGAG GCCGUUAGGC CGAA AUAACCAG	7507
385	GGAUGUGU C UGCGGCGU	108	ACGCCGCA CUGAUGAG GCCGUUAGGC CGAA ACACAUCC	7508
394	UGCGGCGU U UUAUCAUC	109	GAUGAUAA CUGAUGAG GCCGUUAGGC CGAA ACGCCGCA	7509
395	GCGGCGUU U UAUCAUCU	110	AGAUGAUA CUGAUGAG GCCGUUAGGC CGAA AACGCCGC	7510
396	CGGCGUUU U AUCAUCUU	111	AAGAUGAU CUGAUGAG GCCGUUAGGC CGAA AAACGCCG	7511
397	GGCGUUUU A UCAUCUUC	112	GAAGAUGA CUGAUGAG GCCGUUAGGC CGAA AAAACGCC	7512
399	CGUUUUAU C AUCUUCCU	113	AGGAAGAU CUGAUGAG GCCGUUAGGC CGAA AUAAAACG	7513
402	UUUAUCAU C UUCCUCUG	114	CAGAGGAA CUGAUGAG GCCGUUAGGC CGAA AUGAUAAA	7514
404	UAUCAUCU U CCUCUGCA	115	UGCAGAGG CUGAUGAG GCCGUUAGGC CGAA AGAUGAUA	7515
405	AUCAUCUU C CUCUGCAU	116	AUGCAGAG CUGAUGAG GCCGUUAGGC CGAA AAGAUGAU	7516
408	AUCUUCCU C UGCAUCCU	117	AGGAUGCA CUGAUGAG GCCGUUAGGC CGAA AGGAAGAU	7517
414	CUCUGCAU C CUGCUGCU	118	AGCAGCAG CUGAUGAG GCCGUUAGGC CGAA AUGCAGAG	7518
423	CUGCUGCU A UGCCUCAU	119	AUGAGGCA CUGAUGAG GCCGUUAGGC CGAA AGCAGCAG	7519
429	CUAUGCCU C AUCUUCUU	120	AAGAAGAU CUGAUGAG GCCGUUAGGC CGAA AGGCAUAG	7520
432	UGCCUCAU C UUCUUGUU	121	AACAAGAA CUGAUGAG GCCGUUAGGC CGAA AUGAGGCA	7521
434	CCUCAUCU U CUUGUUGG	122	CCAACAAG CUGAUGAG GCCGUUAGGC CGAA AGAUGAGG	7522
435	CUCAUCUU C UUGUUGGU	123	ACCAACAA CUGAUGAG GCCGUUAGGC CGAA AAGAUGAG	7523
437	CAUCUUCU U GUUGGUUC	124	GAACCAAC CUGAUGAG GCCGUUAGGC CGAA AGAAGAUG	7524
440	CUUCUUGU U GGUUCUUC	125	GAAGAACC CUGAUGAG GCCGUUAGGC CGAA ACAAGAAG	7525
444	UUGUUGGU U CUUCUGGA		UCCAGAAG CUGAUGAG GCCGUUAGGC CGAA ACCAACAA	
445	UGUUGGUU C UUCUGGAC	126	GUCCAGAA CUGAUGAG GCCGUUAGGC CGAA AACCAACA	7526
447	UUGGUUCU U CUGGACUA	127	UAGUCCAG CUGAUGAG GCCGUUAGGC CGAA AGAACCAA	7527
448	UGGUUCUU C UGGACUAU	128	AUAGUCCA CUGAUGAG GCCGUUAGGC CGAA AGAACCA	7528
455	UCUGGACU A UCAAGGUA	129	UACCUUGA CUGAUGAG GCCGUUAGGC CGAA AGUCCAGA	7529
+35	CCOGGACO A OCAAGGOA	130	OACCOOR COGNOGAG GCCGOONGGC CGAA AGUCCAGA	7530

457	UGGACUAU C AAGGUAUG	131	CAUACCUU CUGAUGAG GCCGUUAGGC CGAA AUAGUCCA	7531
463	AUCAAGGU A UGUUGCCC	132	GGGCAACA CUGAUGAG GCCGUUAGGC CGAA ACCUUGAU	7532
467	AGGUAUGU U GCCCGUUU	133	AAACGGGC CUGAUGAG GCCGUUAGGC CGAA ACAUACCU	7533
474	UUGCCCGU U UGUCCUCU	134	AGAGGACA CUGAUGAG GCCGUUAGGC CGAA ACGGGCAA	7534
475	UGCCCGUU U GUCCUCUA	135	UAGAGGAC CUGAUGAG GCCGUUAGGC CGAA AACGGGCA	7535
478	CCGUUUGU C CUCUAAUU	136	AAUUAGAG CUGAUGAG GCCGUUAGGC CGAA ACAAACGG	7536
481	UUUGUCCU C UAAUUCCA	137	UGGAAUUA CUGAUGAG GCCGUUAGGC CGAA AGGACAAA	7537
483	UGUCCUCU A AUUCCAGG	138	CCUGGAAU CUGAUGAG GCCGUUAGGC CGAA AGAGGACA	7538
486	CCUCUAAU U CCAGGAUC	139	GAUCCUGG CUGAUGAG GCCGUUAGGC CGAA AUUAGAGG	7539
487	CUCUAAUU C CAGGAUCA	140	UGAUCCUG CUGAUGAG GCCGUUAGGC CGAA AAUUAGAG	7540
494	UCCAGGAU C AUCAACAA	141	UUGUUGAU CUGAUGAG GCCGUUAGGC CGAA AUCCUGGA	7541
497	AGGAUCAU C AACAACCA	142	UGGUUGUU CUGAUGAG GCCGUUAGGC CGAA AUGAUCCU	7542
535	GCACAACU C CUGCUCAA	143	UUGAGCAG CUGAUGAG GCCGUUAGGC CGAA AGUUGUGC	+
541	CUCCUGCU C AAGGAACC	143	GGUUCCUU CUGAUGAG GCCGUUAGGC CGAA AGCAGGAG	7543
551	AGGAACCU C UAUGUUUC		GAAACAUA CUGAUGAG GCCGUUAGGC CGAA AGGUUCCU	7544
553	GAACCUCU A UGUUUCCC	145	GGGAAACA CUGAUGAG GCCGUUAGGC CGAA AGAGGUUC	7545
557	CUCUAUGU U UCCCUCAU	146	AUGAGGGA CUGAUGAG GCCGUUAGGC CGAA ACAUAGAG	7546
558	UCUAUGUU U CCCUCAUG	147	CAUGAGGG CUGAUGAG GCCGUUAGGC CGAA AACAUAGA	7547
559	CUAUGUUU C CCUCAUGU	148	ACAUGAGG CUGAUGAG GCCGUUAGGC CGAA AAACAUAG	7548
	GUUUCCCU C AUGUUGCU	149	ACADGAGG COGAGGAGG CCGUUAGGC CGAA AGGGAAAC	7549
563	CCUCAUGU U GCUGUACA	150	UGUACAGC CUGAUGAG GCCGUUAGGC CGAA ACAUGAGG	7550
568	GUUGCUGU A CAAAACCU	151	AGGUUUUG CUGAUGAG GCCGUUAGGC CGAA ACAGCAAC	7551
574		152		7552
583	CAAAACCU A CGGACGGA	153	UCCGUCCG CUGAUGAG GCCGUUAGGC CGAA AGGUUUUG	7553
604	GCACCUGU A UUCCCAUC	154	GAUGGGAA CUGAUGAG GCCGUUAGGC CGAA ACAGGUGC	7554
606	ACCUGUAU U CCCAUCCC	155	GGGAUGGG CUGAUGAG GCCGUUAGGC CGAA AUACAGGU	7555
607	CCUGUAUU C CCAUCCCA	156	UGGGAUGG CUGAUGAG GCCGUUAGGC CGAA AAUACAGG	7556
612	AUUCCCAU C CCAUCAUC	157	GAUGAUGG CUGAUGAG GCCGUUAGGC CGAA AUGGGAAU	7557
617	CAUCCCAU C AUCUUGGG	158	CCCAAGAU CUGAUGAG GCCGUUAGGC CGAA AUGGGAUG	7558
620	CCCAUCAU C UUGGGCUU	159	AAGCCCAA CUGAUGAG GCCGUUAGGC CGAA AUGAUGGG	7559
622	CAUCAUCU U GGGCUUUC	160	GAAAGCCC CUGAUGAG GCCGUUAGGC CGAA AGAUGAUG	7560
628	CUUGGGCU U UCGCAAAA	161	UUUUGCGA CUGAUGAG GCCGUUAGGC CGAA AGCCCAAG	7561
629	UUGGGCUU U CGCAAAAU	162	AUUUUGCG CUGAUGAG GCCGUUAGGC CGAA AAGCCCAA	7562
630	UGGGCUUU C GCAAAAUA	163	UAUUUUGC CUGAUGAG GCCGUUAGGC CGAA AAAGCCCA	7563
638	CGCAAAAU A CCUAUGGG	164	CCCAUAGG CUGAUGAG GCCGUUAGGC CGAA AUUUUGCG	7564
642	AAAUACCU A UGGGAGUG	165	CACUCCCA CUGAUGAG GCCGUUAGGC CGAA AGGUAUUU	7565
656	GUGGGCCU C AGUCCGUU	166	AACGGACU CUGAUGAG GCCGUUAGGC CGAA AGGCCCAC	7566
660	GCCUCAGU C CGUUUCUC	167	GAGAAACG CUGAUGAG GCCGUUAGGC CGAA ACUGAGGC	7567
664	CAGUCCGU U UCUCUUGG	168	CCAAGAGA CUGAUGAG GCCGUUAGGC CGAA ACGGACUG	7568
665	AGUCCGUU U CUCUUGGC	169	GCCAAGAG CUGAUGAG GCCGUUAGGC CGAA AACGGACU	7569
666	GUCCGUUU C UCUUGGCU	170	AGCCAAGA CUGAUGAG GCCGUUAGGC CGAA AAACGGAC	7570
668	CCGUUUCU C UUGGCUCA	171	UGAGCCAA CUGAUGAG GCCGUUAGGC CGAA AGAAACGG	7571
670	GUUUCUCU U GGCUCAGU	172	ACUGAGCC CUGAUGAG GCCGUUAGGC CGAA AGAGAAAC	7572
675	UCUUGGCU C AGUUUACU	173	AGUAAACU CUGAUGAG GCCGUUAGGC CGAA AGCCAAGA	7573
679	GGCUCAGU U UACUAGUG	174	CACUAGUA CUGAUGAG GCCGUUAGGC CGAA ACUGAGCC	7574
680	GCUCAGUU U ACUAGUGC	175	GCACUAGU CUGAUGAG GCCGUUAGGC CGAA AACUGAGC	7575
681	CUCAGUUU A CUAGUGCC	176	GGCACUAG CUGAUGAG GCCGUUAGGC CGAA AAACUGAG	7576
684	AGUUUACU A GUGCCAUU	177	AAUGGCAC CUGAUGAG GCCGUUAGGC CGAA AGUAAACU	7577
692	AGUGCCAU U UGUUCAGU	178	ACUGAACA CUGAUGAG GCCGUUAGGC CGAA AUGGCACU	7578
693	GUGCCAUU U GUUCAGUG	179	CACUGAAC CUGAUGAG GCCGUUAGGC CGAA AAUGGCAC	7579
696	CCAUUUGU U CAGUGGUU	180	AACCACUG CUGAUGAG GCCGUUAGGC CGAA ACAAAUGG	7580
697	CAUUUGUU C AGUGGUUC	181	GAACCACU CUGAUGAG GCCGUUAGGC CGAA AACAAAUG	7581

704	UCAGUGGU U CGUAGGGC	182	GCCCUACG CUGAUGAG GCCGUUAGGC CGAA ACCACUGA	7582
705	CAGUGGUU C GUAGGGCU	183	AGCCCUAC CUGAUGAG GCCGUUAGGC CGAA AACCACUG	7583
708	UGGUUCGU A GGGCUUUC	184	GAAAGCCC CUGAUGAG GCCGUUAGGC CGAA ACGAACCA	7584
714	GUAGGGCU U UCCCCCAC	185	GUGGGGGA CUGAUGAG GCCGUUAGGC CGAA AGCCCUAC	7585
715	UAGGGCUU U CCCCCACU	186	AGUGGGGG CUGAUGAG GCCGUUAGGC CGAA AAGCCCUA	7586
716	AGGGCUUU C CCCCACUG	187	CAGUGGGG CUGAUGAG GCCGUUAGGC CGAA AAAGCCCU	7587
726	CCCACUGU C UGGCUUUC	188	GAAAGCCA CUGAUGAG GCCGUUAGGC CGAA ACAGUGGG	7588
732	GUCUGGCU U UCAGUUAU	189	AUAACUGA CUGAUGAG GCCGUUAGGC CGAA AGCCAGAC	7589
733	UCUGGCUU U CAGUUAUA	190	UAUAACUG CUGAUGAG GCCGUUAGGC CGAA AAGCCAGA	7590
734	CUGGCUUU C AGUUAUAU	191	AUAUAACU CUGAUGAG GCCGUUAGGC CGAA AAAGCCAG	7591
738	CUUUCAGU U AUAUGGAU	192	AUCCAUAU CUGAUGAG GCCGUUAGGC CGAA ACUGAAAG	7592
739	UUUCAGUU A UAUGGAUG	193	CAUCCAUA CUGAUGAG GCCGUUAGGC CGAA AACUGAAA	7593
741	UCAGUUAU A UGGAUGAU	194	AUCAUCCA CUGAUGAG GCCGUUAGGC CGAA AUAACUGA	7594
755	GAUGUGGU U UUGGGGGC	195	GCCCCCAA CUGAUGAG GCCGUUAGGC CGAA ACCACAUC	7595
756	AUGUGGUU U UGGGGGCC	196	GGCCCCCA CUGAUGAG GCCGUUAGGC CGAA AACCACAU	7596
757	UGUGGUUU U GGGGGCCA	197	UGGCCCCC CUGAUGAG GCCGUUAGGC CGAA AAACCACA	7597
769	GGCCAAGU C UGUACAAC	198	GUUGUACA CUGAUGAG GCCGUUAGGC CGAA ACUUGGCC	7598
773	AAGUCUGU A CAACAUCU	199	AGAUGUUG CUGAUGAG GCCGUUAGGC CGAA ACAGACUU	7599
780	UACAACAU C UUGAGUCC	200	GGACUCAA CUGAUGAG GCCGUUAGGC CGAA AUGUUGUA	7600
782	CAACAUCU U GAGUCCCU	201	AGGGACUC CUGAUGAG GCCGUUAGGC CGAA AGAUGUUG	7601
787	UCUUGAGU C CCUUUAUG	202	CAUAAAGG CUGAUGAG GCCGUUAGGC CGAA ACUCAAGA	7602
791	GAGUCCCU U UAUGCCGC	203	GCGGCAUA CUGAUGAG GCCGUUAGGC CGAA AGGGACUC	7603
792	AGUCCCUU U AUGCCGCU	204	AGCGGCAU CUGAUGAG GCCGUUAGGC CGAA AAGGGACU	7604
793	GUCCCUUU A UGCCGCUG	205	CAGCGGCA CUGAUGAG GCCGUUAGGC CGAA AAAGGGAC	7605
803	GCCGCUGU U ACCAAUUU	206	AAAUUGGU CUGAUGAG GCCGUUAGGC CGAA ACAGCGGC	7606
804	CCGCUGUU A CCAAUUUU	207	AAAAUUGG CUGAUGAG GCCGUUAGGC CGAA AACAGCGG	7607
810	UUACCAAU U UUCUUUUG	208	CAAAAGAA CUGAUGAG GCCGUUAGGC CGAA AUUGGUAA	7608
811	UACCAAUU U UCUUUUGU	209	ACAAAAGA CUGAUGAG GCCGUUAGGC CGAA AAUUGGUA	7609
812	ACCAAUUU U CUUUUGUC	210	GACAAAAG CUGAUGAG GCCGUUAGGC CGAA AAAUUGGU	7610
813	CCAAUUUU C UUUUGUCU	211	AGACAAAA CUGAUGAG GCCGUUAGGC CGAA AAAAUUGG	7611
815	AAUUUUCU U UUGUCUUU	212	AAAGACAA CUGAUGAG GCCGUUAGGC CGAA AGAAAAUU	7612
816	AUUUUCUU U UGUCUUUG	213	CAAAGACA CUGAUGAG GCCGUUAGGC CGAA AAGAAAAU	7613
817	บบบบcบบบ บ Gucuuugg	214	CCAAAGAC CUGAUGAG GCCGUUAGGC CGAA AAAGAAAA	7614
820	UCUUUUGU C UUUGGGUA	215	UACCCAAA CUGAUGAG GCCGUUAGGC CGAA ACAAAAGA	7615
822	UUUUGUCU U UGGGUAUA	216	UAUACCCA CUGAUGAG GCCGUUAGGC CGAA AGACAAAA	7616
823	UUUGUCUU U GGGUAUAC	217	GUAUACCC CUGAUGAG GCCGUUAGGC CGAA AAGACAAA	7617
828	CUUUGGGU A UACAUUUA	218	UAAAUGUA CUGAUGAG GCCGUUAGGC CGAA ACCCAAAG	7618
830	UUGGGUAU A CAUUUAAA	219	UUUAAAUG CUGAUGAG GCCGUUAGGC CGAA AUACCCAA	7619
834	GUAUACAU U UAAACCCU	220	AGGGUUUA CUGAUGAG GCCGUUAGGC CGAA AUGUAUAC	7620
835	UAUACAUU U AAACCCUC	221	GAGGGUUU CUGAUGAG GCCGUUAGGC CGAA AAUGUAUA	7621
836	AUACAUUU A AACCCUCA	222	UGAGGGUU CUGAUGAG GCCGUUAGGC CGAA AAAUGUAU	7622
843	UAAACCCU C ACAAAACA	223	UGUUUUGU CUGAUGAG GCCGUUAGGC CGAA AGGGUUUA	7623
865	AUGGGGAU A UUCCCUUA	224	UAAGGGAA CUGAUGAG GCCGUUAGGC CGAA AUCCCCAU	7624
867	GGGGAUAU U CCCUUAAC	225	GUUAAGGG CUGAUGAG GCCGUUAGGC CGAA AUAUCCCC	7625
868	GGGAUAUU C CCUUAACU	226	AGUUAAGG CUGAUGAG GCCGUUAGGC CGAA AAUAUCCC	7626
872	UAUUCCCU U AACUUCAU	227	AUGAAGUU CUGAUGAG GCCGUUAGGC CGAA AGGGAAUA	7627
873	AUUCCCUU A ACUUCAUG	228	CAUGAAGU CUGAUGAG GCCGUUAGGC CGAA AAGGGAAU	— —
877	CCUUAACU U CAUGGGAU		AUCCCAUG CUGAUGAG GCCGUUAGGC CGAA AGUUAAGG	7628
878	CUUAACUU C AUGGGAUA	229	UAUCCCAU CUGAUGAG GCCGUUAGGC CGAA AAGUUAAG	7629
886	CAUGGGAU A UGUAAUUG	230	CAAUUACA CUGAUGAG GCCGUUAGGC CGAA AUCCCAUG	7630
890	GGAUAUGU A AUUGGGAG		CUCCCAAU CUGAUGAG GCCGUUAGGC CGAA ACAUAUCC	7631
		232	COCCUENT CONTROL CONTROL COMA ACADAOCC	7632

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924 AGGACAU U GUCACAGG 235 CUUGUGG CUGAUGAG GCCGUUAGG CAA AUGUICCO 7635 924 AGGACAU A UUGUACAA 236 UUGUACAC CUGAUGAG GCCGUUAGG CAA AUGUICCO 7636 925 GAACAUAU U GUACAAA 237 UUUUGUGC CUGAUGAG GCCGUUAGG CAA AUGUICCO 7637 929 CAUAUUGU A CAAAAAU 238 AUUUUUUC CUGAUGAG GCCGUUAGG CAA AUGUICCO 7637 938 CAAAAAU 238 AUUUUUUCU CUGAUGAG GCCGUUAGG CAA AUGUICCO 7637 938 CAAAAAU 238 CACAUUU CUGAUGAG GCCGUUAGG CAA AUGUICCO 7637 948 AAAUGUGU U UUAGGAAA 240 UUUCCUA CUGAUGAG GCCGUUAGG CAA AUGUICU 7639 949 AAUGUGUU U UAGGAAAC 241 GUUUCCUA CUGAUGAG GCCGUUAGG CAA AUGUICU 7639 950 AUGUGUU U GAGAACU 242 AUUUUCCU CUGAUGAG GCCGUUAGG CAA AUGUICU 7649 951 AUGUGUU U AGGAAAC 241 AUUUCCU CUGAUGAG GCCGUUAGG CAA AUGUICU 7649 951 UUUCCUA CUGAUGAG GCCGUUAGG CAA AACACAU 7641 951 UUUCCUA CUGAUGAG GCCGUUAGG CAA AACACAU 7641 952 AGGAAACU U CCUGAAA 244 UUUACAGG CUGAUGAG GCCGUUAGG CAA AACACAU 7642 953 AGGAAACU U CCUGAAA 244 UUUACAGG CUGAUGAG GCCGUUAGG CAA AACACAU 7642 954 AGGACACU U CCUGAAAC 245 GUUACAGG CUGAUGAG GCCGUUAGG CAA AACACAU 7643 955 AGGAAACU U CCUGAUGA 244 UUUACAGG CUGAUGAG GCCGUUAGG CAA AACACAU 7645 956 GGAAACU C CUGAUGAG 245 GUUACAGG CUGAUGAG GCCGUUAGG CAA AACACAU 7645 956 GUACACU U CAUGAUGA 247 CCAAUCAG CUGAUGAG GCCGUUAGG CAA AACACAU 7647 977 AGGCCUAU U GAUGAGA 248 UUCCAAC CUGAUGAG GCCGUUAGG CAA ACACACU 7649 978 AGGAAAGU U GAUGAUGA 248 UUCCAAC CUGAUGAG GCCGUUAGG CAA AACACAU 7647 979 AGGCCUAU U GAUGAUGA 248 UUCCAAC CUGAUGAG GCCGUUAGG CAA ACACACU 7647 971 AGGCCUAU U GAUGAUGA 248 UUCCAAC CUGAUGAG GCCGUUAGG CAA AACACAC 7649 971 AGGCCUAU U GAUGAUGA 248 UUCCAAC CUGAUGAG GCCGUUAGG CAA AACACAC 7649 971 AGGCCUAU U GAUGAGA 249 UUCCAAC CUGAUGAG GCCGUUAGG CAA AACACAC 7649 971 AGGCCUAU U GAUGAGA 249 UUCCAAC CUGAUGAG GCCGUUAGG CAA AACACAC 7649 971 AGGCCUAU U GAUGAGA 249 UUCCAAC CUGAUGAG GCCGUUAGG CAA AACACAC 7649 971 AGGCCUAU U GAUGAGA 249 UUCCAAC CUGAUGAG GCCGUUAGG CAA AACACAC 7651 1001 UUGAGGAU U UCCAAC COCAC CUGAUGAG GCCGUUAGG CAA AACACAC 7651 1001 UUGAGGAU U UUCAAC COCAC COCAC CUGAUGAG GCCGUUAGG CAA AACACAC CAACACC CAACAC CAACACC CUGAUGAG GCCGUUAGG	893	UAUGUAAU U GGGAGUUG	233	CAACUCCC CUGAUGAG GCCGUUAGGC CGAA AUUACAUA	7633
2924 AGGARCAU A UUGUACAA 236	900		234		7634
926 GAACAUMU U GUACAAA 237 UUUUGUAC CUGAUGAG GCCGUUAGGC GAA AUAUCUUC 7637 929 CAMANUUGU A CAAAAAAU 238 AUUUUUUG CUGAUGAG GCCGUUAGGC GAA AUUUUUUU 7639 938 CAAAAAAU CAAAAAUGUG 239 CACAUUUU CUGAUGAG GCCGUUAGGC GAA AUUUUUUU 7639 948 AAAUGUGUU U UAGGAAAC 240 UUUCCUAA CUGAUGAG GCCGUUAGGC GAA AUUUUUUU 7639 949 AAAUGUGUU U AGGAAACU 241 GUUUCCUA CUGAUGAG GCCGUUAGGC GAA AACACAUUU 7640 950 AUGUGUUU A AGGAAACU 242 AGUUUCCU CUGAUGAG GCCGUUAGGC GAA AACACAUU 7641 950 AUGUGUUU A AGGAAACU 242 AGUUUCCU CUGAUGAG GCCGUUAGGC GAA AACACAUU 7641 951 UUUCCUA CUGAUGAG GCCGUUAGGC GAA AACACAUU 7641 952 AGGAAACU CUCUGUAAA 244 UUUACAG CUGAUGAG GCCGUUAGGC GAA AACACAU 7642 953 AGGAAACU CUCUGUAAA 244 UUUACAG CUGAUGAG GCCGUUAGGC GAA AACACAU 7643 954 AGGAAACU CUCUGUAAA 244 UUUACAG CUGAUGAG GCCGUUAGGC GAA AACACAC 7643 955 ACAGGCU A UUQAUUGG 245 GUUUACAG CUGAUGAG GCCGUUAGGC GAA AACUCAU 7644 960 GGAAACUU C CUGUAAAC 245 GUUUACAG CUGAUGAG GCCGUUAGGC GAA AACUCAU 7644 977 AGGCCUAU U GUAUUGG 247 CCAAUCA CUGAUGAG GCCGUUAGGC GAA AACUCAU 7647 977 AGGCCUAU U GUAUUGG 249 UUCCAAU CUGAUGAG GCCGUUAGGC GAA AACUCAU 7647 977 AGGCCUAU U GUAUUGG 249 UUCCAAU CUGAUGAG GCCGUUAGGC GAA ACACAUC 7659 983 AAGUAUGU C UUUAGGG 250 GUUGACA CUGAUGAG GCCGUUAGGC GAA AUAGGCCU 7649 989 UUGAAAGU A UUUCCUC CUGAUGAG GCCGUUAGGC GAA ACACAUC 7659 993 AAGUAUGU C UUUCGGG 251 GUUGACA CUGAUGAG GCCGUUAGGC GAA AUAGAUGA 7647 977 AGGCCUAU U GAGGAAGUA 249 UUCCAAU CUGAUGAG GCCGUUAGGC GAA AUAGAUGA 7659 983 AAGUAUGU C UUUCGGG 252 GUUGACA CUGAUGAG GCCGUUAGGC GAA AUAGAUGA 7659 983 AAGUAUGU C UUUCGGG 252 AGACACCAA CUGAUGAG GCCGUUAGGC GAA AUAGAUGA 7659 1001 CAACAGAA U GUGGGUCU 252 AACACCCA CUGAUGAG GCCGUUAGGC GAA AUACAUCU 7650 1001 CAACAGAA U GUGGGUCU 255 AAACCCCA CUGAUGAG GCCGUUAGGC GAA AACACAC 7653 1001 CUGGGGUU U UGGGGUU 254 AACCCCA CUGAUGAG GCCGUUAGGC GAA AACACAC 7653 1001 CUGGGGUU U UGGGGUU 255 AAACCCCA CUGAUGAG GCCGUUAGGC GAA AACACCA 7653 1001 CUGGGGUU U UGGGGGUU 255 AAACCCCA CUGAUGAG GCCGUUAGGC GAA AACACCA 7653 1001 CUGGGGUU U UGACGCCC 257 GGGGGAC CUGAUGAG GCCGUUAGGC GAA AACACCA 7653 1001 CUGAGCAU	910	GGGCACAU U GCCACAGG	235	CCUGUGGC CUGAUGAG GCCGUUAGGC CGAA AUGUGCCC	7635
928 CAMANUSU C ARAANAU 238 AUJUUUUG CUGAUGAG GCCGUUAGGC CGAA ACABURIG 7638 938 CAAAAAAU C ARAANAU 239 CACAUUUU CUGAUGAG GCCGUUAGGC CGAA ACACUUU 7649 949 AAUUGGUU U UAGGAAAC 241 GUUUCCUA CUGAUGAG GCCGUUAGGC CGAA ACACAUU 7649 959 AAUUGGUU U AGGAAACU 242 AGUUUCCU CUGAUGAG GCCGUUAGGC CGAA ACACAUU 7641 951 UGUGUUU U AGGAAACU 241 ARGUUUCCU CUGAUGAG GCCGUUAGGC CGAA ACACAUU 7641 952 AGGAAACU C CUGUAAAC 241 ARGUUCCU CUGAUGAG GCCGUUAGGC CGAA ACACAUU 7641 953 UGUGUUU A GGAAACU 242 ARGUUCCU CUGAUGAG GCCGUUAGGC CGAA AAACACAU 7643 955 AGGAACU C CUGUAAAC 244 HUUACAGG CUGAUGAG GCCGUUAGGC CGAA AAACACAU 7643 956 GCAAACU C CUGUAAAC 245 GGUUCAGG CGAAAGG GCCGUUAGGC CGAA AAAACACAU 7643 965 CUUCCUGU A AACAGGCC 246 GGCCGUU CUGAUGAG GCCGUUAGGC CGAA AAAACACU 7645 975 ACAGGCCUA UUGAUGAG 246 GGCCGUUAGGC CGAAAGG CCGGUAGGC CGAA AAGGCCUG 7645 975 ACAGGCCUA UUGAUGAG 247 CCAAUCAA CUGAUGAG GCCGUUAGGC CGAA ACAGGAAG 7646 975 ACAGGCCUA UUGAUGAG 247 CCAAUCAA CUGAUGAG GCCGUUAGGC CGAA ACACGGAAG 7646 981 CUAUUGAU U GGAAAGUA 249 UACUUCC CUGAUGAG GCCGUUAGGC CGAA AUCAGUAG 7649 989 UGGAAAGU A UGUCAGAC 250 GGUUGACA CUGAUGAG GCCGUUAGGC CGAA ACACGGAAG 7649 989 AAGUAUGU C AACGAAUU 251 AAUUCGUU CUGAUGAG GCCGUUAGGC CGAA ACUCACUA 7669 989 AAGUAUGU C AACGAAUU 251 AAUUCGUU CUGAUGAG GCCGUUAGGC CGAA ACUCACUA 7669 1008 UUGUGGGU C UUUUGGGG 253 CCCCAAAA CUGAUGAG GCCGUUAGGC CGAA ACUCACUA 7651 1010 GUGGGUU U UGGGGGUU 252 AACCCCAC CUGAUGAG GCCGUUAGGC CGAA ACUCACUA 7651 1011 UGGGGUU U UGGGGGUU 254 AACCCCAC CUGAUGAG GCCGUUAGGC CGAA ACCCCAA 7651 1011 UGGGGUU U UGGGGGUU 255 AACCCCCA CUGAUGAG GCCGUUAGGC CGAA ACCCCAA 7651 1012 GGCGUUU U GGGGGUUG 255 CAAACCCCA CUGAUGAG GCCGUUAGGC CGAA ACCCCAA 7651 1018 UUUGGGGU U UGCGGCC 257 GGGCGGC CUGAUGAG GCCGUUAGGC CGAA ACCCCAA 7651 1019 UUGGGGUU U CACGCCAC 258 GGGGCGGC CUGAUGAG GCCGUUAGGC CGAA AACCCCAA 7651 1019 UUGGGGUU U CACGCCAC 258 GGGGCGGC CUGAUGAGC CGAA AACCCCAA 7651 1019 UUGGGGUU U CACGCCAC 258 GGGGCGGC CUGAUGAG GCCGUUAGGC CGAA AACCCCAA 7651 1019 UUGGGGUU U CACGCCAC 258 GGGCGGC CUGAUGAG GCCGUUAGGC CGAA AACCCCAA 7651 1046 AUGCUUU U AA	924	AGGAACAU A UUGUACAA	236	UUGUACAA CUGAUGAG GCCGUUAGGC CGAA AUGUUCCU	7636
938 CAAAAAAU C AAAAAGUC 239 CACAUUUU CUGAUGAG GCCGUUAGGC CGAA AUUUUUUUG 7639 948 AAAGUGUUU UUAGGAAA 240 UUUUCUCUA CUGAUGAG GCCGUUAGGC CGAA AUUUUUUG 7639 949 AAAGUGUUU U AAGGAAACU 241 GUUUUCUU CUGAUGAG GCCGUUAGGC CGAA AAACACAUU 7641 950 AUGUGUUU U AGGAAACU 242 AGUUUCCU CUGAUGAG GCCGUUAGGC CGAA AAACACAU 7642 951 UUGUUUU A GGAAACU 243 AGUUUCCU CUGAUGAG GCCGUUAGGC CGAA AAACACAU 7642 952 AGGAAACU C CUGUAAAA 244 UUUACAGG CUGAUGAGG GCCGUUAGGC CGAA AAACACAU 7643 953 AGGAAACU C CUGUAAAA 244 UUUACAGG CUGAUGAGG GCCGUUAGGC CGAA AAACACAU 7643 956 GGAAACUU C CUGUAAAA 244 UUUACAGG CUGAUGAGG GCCGUUAGGC CGAA AAGUUUCC 7645 957 ACAGGCU A AACAGGCC 246 GGCUGUU CUGAUGAG GCCGUUAGGC CGAA AAGUUUCC 7645 958 CUUCCUGU A AACAGGCC 246 GGCUGUU CUGAUGAG GCCGUUAGGC CGAA AAGUUUCC 7647 977 ACGCCUAU U GAUUGAGA 249 UUCCAAUCA CUGAUGAG GCCGUUAGGC CGAA AAGGCAGA 7647 978 CUAUUGAU U GAAAGGA 249 UUCCAAUC CUGAUGAG GCCGUUAGGC CGAA AUAGGCCU 7649 989 UGGAAAGU A UGUCAACG 250 CGUUGACA CUGAUGAGG GCCGUUAGGC CGAA AUAGGCCU 7649 989 UGGAAAGU A UGUCAACG 250 CGUUGACA CUGAUGAGG GCCGUUAGGC CGAA AUAGGCCU 7659 993 AAGUAUGU C AACGAAUU 251 AAUUCGUU CUGAUGAG GCCGUUAGGC CGAA AUCAAUAU 7651 1001 CAACGAAU U GUGGGUUU 252 AAACCCCA CUGAUGAGG GCCGUUAGGC CGAA ACUAUACU 7650 1008 UUGUGGGUU U UUGGGGUU 252 AAACCCCAC CUGAUGAGG GCCGUUAGGC CGAA ACUAUCU 7651 1010 GUGGGUUU U UGGGGUUU 255 AAACCCCA CUGAUGAGG GCCGUUAGGC CGAA ACUAUCU 7651 1011 UGGGGUUU U UGGGGUUU 255 AAACCCCA CUGAUGAG GCCGUUAGGC CGAA ACUACUC 7655 1012 GGGUCUU U UGGGGUUU 255 AAACCCCA CUGAUGAGG GCCGUUAGGC CGAA ACCACAC 7653 1010 GUGGGUUU U UGGGGUUU 255 AAACCCCA CUGAUGAGG GCCGUUAGGC CGAA AACCCCA 7655 1012 GGGCCCUU U CACGCAC 257 GGGGGCA CUGAUGAG GCCGUUAGGC CGAA AACCCCA 7655 1012 GGGCCCUU U CACGCAC 257 GGGGGCC CUGAUGAGG GCCGUUAGGC CGAA AACCCCA 7655 1019 UUGGGGUU U UGGGGGUU 255 AAACCCC CUGAUGAGG GCCGUUAGGC CGAA AACCCCA 7655 1019 UUGGGGUU U UGGGGGUU 255 AAACCCC CUGAUGAGG GCCGUUAGGC CGAA AACCCCA 7655 1019 UUGGGGUU U UGACGCCCC 257 GGGGGCC CUGAUGAGG GCCGUUAGGC CGAA AACCCCA 7655 1019 CCCCCCCU U UCACGCAC 257 GGGGGCC CUGAUGAGG GCCGUUAGGC CGA	926	GAACAUAU U GUACAAAA	237	UUUUGUAC CUGAUGAG GCCGUUAGGC CGAA AUAUGUUC	7637
948 AANGUGUU U UNAGANAN 241 UUUCCUNA CUGAUGAG GCCGUUAGGC CGAN ACACAUUU 7640 949 AAGUGUGUU U AAGANACU 241 GUUUCCUNA CUGAUGAG GCCGUUAGGC CGAN AACACAU 7641 950 AUGUGUUU A GGANACUU 243 AAGUUUC CUGAUGAG GCCGUUAGGC CGAN AACACAU 7642 951 UGUGUUUU A GGANACUU 243 AAGUUUC CUGAUGAG GCCGUUAGGC CGAN AACACAU 7642 952 AGGANACUU CUGUIANAA 244 UUUACAGG CUGAUGAG GCCGUUAGGC CGAN AACACAU 7643 959 AGGANACUU CUGUIANAA 244 UUUACAGG CUGAUGAG GCCGUUAGGC CGAN AACACAU 7643 960 GGANACUU CUGUIANAA 244 UUUACAGG CUGAUGAG GCCGUUAGGC CGAN AAGUUCC 7645 965 CUUCCUGU A AACAGGCC 246 GGCCUGUU CUGAUGAG GCCGUUAGGC CGAN AAGUUCC 7645 975 ACAGGCCU A UUGAUUGG 247 CCANUCAA CUGAUGAG GCCGUUAGGC CGAN AAGUUCC 7645 976 ACAGGCCU A UUGAUUGG 247 CCANUCAA CUGAUGAG GCCGUUAGGC CGAN AAGUCC 7649 977 AAGCCUAU U GAUUGAGA 249 UUCCAAAC CUGAUGAG GCCGUUAGGC CGAN AAGCCUGU 7649 981 CUAUUGAU U GGAAAGUA 249 UACUUCC CUGAUGAG GCCGUUAGGC CGAN AUCAUAGAG 989 UGGANAGU A UUUCACACG 250 CGUUGAC CUGAUGAG GCCGUUAGGC CGAN AUCAUAGA 7650 1001 CAACGAU U GUGGGGUU 251 AAUUCGUU CUGAUGAG GCCGUUAGGC CGAN AUCAUAGA 7651 1001 CAACGAU U GUGGGGGU 252 AGACCCC CUGAUGAG GCCGUUAGGC CGAN AUCAUAGA 7651 1001 CAACGAU U GUGGGGGU 252 AGACCCC CUGAUGAG GCCGUUAGGC CGAN AUCAUAGA 7651 1001 CAACGAU U GUGGGGUU 252 AGACCCC CUGAUGAG GCCGUUAGGC CGAN AUCACUCC 7651 1001 CAACGAU U GUGGGGUU 255 AAACCCCA CUGAUGAG GCCGUUAGGC CGAN AUCACUCC 7651 1001 UUGGGGUU U GGGGGUUU 255 AAACCCCA CUGAUGAG GCCGUUAGGC CGAN AAACACCA 7651 1011 UGGGGUUU U GGGGGUU 255 AAACCCCA CUGAUGAG GCCGUUAGGC CGAN AAACACCA 7651 1012 GGGCCCUU U CACGCAC 258 GGGGGGC CUGAUGAG GCCGUUAGGC CGAN AAACACCA 7651 1018 UUUGGGGUU U CACGCAC 258 GGGGGGGC CUGAUGAG GCCGUUAGGC CGAN AAACACCA 7651 1019 UUGGGGGU U UCAGGGGCC 258 GGGGGGGG CUGAUGAG GCCGUUAGGC CGAN AAACACCA 7651 1019 UUGGGGGUU U CACGCAC 259 GGGGGGC CUGAUGAG GCCGUUAGGC CGAN AAACACCA 7651 1019 UUGGGGGUU U CACGCAC 259 GGGGGGC CUGAUGAG GCCGUUAGGC CGAN AAACACCA 7651 1019 UUGGGGGUU U CACGCAC 259 GGGGGGC CUGAUGAG GCCGUUAGGC CGAN AAACACCA 7651 1019 UUGGGGGUU U CACGCAC 259 GGGGGGGC CUGAUGAG GCCGUUAGGC CGAN AAACACCA 7651 1019 UUGG	929	CAUAUUGU A CAAAAAU	238	AUUUUUUG CUGAUGAG GCCGUUAGGC CGAA ACAAUAUG	7638
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950 NUGUIGUUU U AGGANACU 242 AGUUUCCU CUGAUGAG GCCGUUAGGC CGAN ANAACACAN 7643 951 UGUGUUUU A GGANACUU 243 AAGUUUCCU CUGAUGAG GCCGUUAGGC CGAN ANAACACAN 7643 9595 AGGANACUU C CUGUUANAC 245 GUUUACAG CUGAUGAGG GCCGUUAGGC CGAN ANAACACAN 7643 960 GGANACUU C CUGUUANAC 245 GUUUACAG CUGAUGAGG GCCGUUAGGC CGAN AGUUUCCU 7644 960 GGANACUU C CUGUANAC 245 GUUUACAG CUGAUGAG GCCGUUAGGC CGAN ACAGGAAG 7646 965 CUUUCCUGU A NACAGGCC 246 GGCCUGUU CUGAUGAG GCCGUUAGGC CGAN ACAGGAAG 7646 977 AGGCCUAU U UUGAUUGG 247 CCAACUCAA CUGAUGAG GCCGUUAGGC CGAN ACAGGAAG 7646 978 ACAGGCCU A UUGAUUGG 247 CCAACUCAA CUGAUGAG GCCGUUAGGC CGAN ACAGGAAG 7649 981 CUAUUGAU U GAUAGGA 248 UUCCAAUC CUGAUGAG GCCGUUAGGC CGAN AUAGGCCU 7643 981 CUAUUGAU U GAUAGAG 250 CGUUACAC CUGAUGAG GCCGUUAGGC CGAN AUAGGCCU 7649 989 UGAAAGU A GUCCAACC 250 CGUUACAC CUGAUGAG GCCGUUAGGC CGAN AUAGACCA 7650 989 AAGUAUG C AACGAAUU 251 AAUUCGUU CUGAUGAG GCCGUUAGGC CGAN AUCAGUAC 7650 1008 UUGUGGGU C UUUUGGGG 253 CCCCCAAA CUGAUGAG GCCGUUAGGC CGAN AUUCGUU C 7651 1010 GUGGGUUU U UUGGGGUUU 254 AACCCCAA CUGAUGAG GCCGUUAGGC CGAN AUUCGUU C 7652 1011 UGGGUUUU U UGGGGUUU 255 AAACCCCA CUGAUGAG GCCGUUAGGC CGAN AUAGCCCA 7654 1011 UGGGUCUU U UGGGGUUU 255 AAACCCCA CUGAUGAG GCCGUUAGGC CGAN AUAGCCCA 7654 1011 UGGGUCUU U UGGGGUUU 255 AAACCCCA CUGAUGAG GCCGUUAGGC CGAN AAGACCCA 7654 1012 GGGUCUUU U UGGGGUUU 255 AAACCCCA CUGAUGAG GCCGUUAGGC CGAN AAGACCCA 7655 1012 GCGCCCCU U UACAGCAA 259 UUGGGGG CUGAUGAG GCCGUUAGGC CGAN AAGACCCA 7656 1018 UUUGGGGU U GCCGCCC 257 GGGGGGC CUGAUGAG GCCGUUAGGC CGAN AAGACCCA 7656 1019 UUGGGGUU U CACGCAA 259 UUGGGGG CUGAUGAG GCCGUUAGGC CGAN AAGACCCA 7656 1029 CCGCCCCU U CACGCAAU 250 AUUGCGGU CUGAUGAG GCCGUUAGGC CGAN AAGACCCA 7651 1045 AUGUGGUU C ACGCAAU 250 AUUGCGGU CUGAUGAG GCCGUUAGGC CGAN AAGACCCA 7651 1046 AUGCGUU C AACGCAAU 250 AUUGCGGU CUGAUGAG GCCGUUAGGC CGAN AAGACCCA 7651 1047 GUGAGAUA U CUCACCUU 266 AAGACCAC CUGAUGAG GCCGUUAGGC CGAN AAGACCA 7661 1047 GUGAGAUA U CUCACCUU 266 AAGACCAC CUGAUGAG GCCGUUAGGC CGAN AAGACCAC 7661 1048 UGGAUAUU C AACGCAA CUGAUGAG GCCGUUAGGC CGAN AA	948	AAAUGUGU U UUAGGAAA	240	UUUCCUAA CUGAUGAG GCCGUUAGGC CGAA ACACAUUU	7640
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1092 AACAGGCU U UUACUUUC 273 GAAAGUAA CUGAUGAG GCCGUUAGGC CGAA AGCCUGUU 7673 1093 ACAGGCUU U UACUUUCU 274 AGAAAGUA CUGAUGAG GCCGUUAGGC CGAA AAGCCUGU 7674 1094 CAGGCUUU U ACUUUCUC 275 GAGAAAGU CUGAUGAG GCCGUUAGGC CGAA AAAGCCUG 7675 1095 AGGCUUUU A CUUUCUCG 276 CGAGAAAG CUGAUGAG GCCGUUAGGC CGAA AAAAGCCU 7676 1098 CUUUUACU U UCUCGCCA 277 UGGCGAGA CUGAUGAG GCCGUUAGGC CGAA AGUAAAAG 7677 1099 UUUUACUU U CUCGCCAA 278 UUGGCGAG CUGAUGAG GCCGUUAGGC CGAA AAGUAAAA 7678 1100 UUUACUUU C UCGCCAAC 279 GUUGGCGA CUGAUGAG GCCGUUAGGC CGAA AAAGUAAAA 7679 1102 UACUUUCU C GCCAACUU 280 AAGUUGGC CUGAUGAG GCCGUUAGGC CGAA AGAAAGUA 7680 1110 CGCCAACUU ACAAGGCC 281 GGCCUUGU CUGAUGAG GCCGUUAGGC CGAA AGUUGGCG 7681 1111 GCCAACUU A CAAGGCCU 282 AGGCCUUG CUGAUGAG GCCGUUAGGC CGAA AAGUUGGC 7682					
ACAGGCUU U UACUUUCU 274 AGAAAGUA CUGAUGAG GCCGUUAGGC CGAA AAGCCUGU 7674 1094 CAGGCUUU U ACUUUCUC 275 GAGAAAGU CUGAUGAG GCCGUUAGGC CGAA AAAGCCUG 7675 1095 AGGCUUUU A CUUUCUCG 276 CGAGAAAG CUGAUGAG GCCGUUAGGC CGAA AAAAGCCU 7676 1098 CUUUUACU U UCUCGCCA 277 UGGCGAGA CUGAUGAG GCCGUUAGGC CGAA AGUAAAAG 7677 1099 UUUUACUU U CUCGCCAA 278 UUGGCGAG CUGAUGAG GCCGUUAGGC CGAA AAGUAAAA 7678 1100 UUUACUUU C UCGCCAAC 279 GUUGGCGA CUGAUGAG GCCGUUAGGC CGAA AAAGUAAAA 7679 1102 UACUUUCU C GCCAACUU 280 AAGUUGGC CUGAUGAG GCCGUUAGGC CGAA AGAAAGUA 7680 1110 CGCCAACUU A CAAGGCC 281 GGCCUUGU CUGAUGAG GCCGUUAGGC CGAA AGUUGGCG 7681 1111 GCCAACUU A CAAGGCCU 282 AGGCCUUG CUGAUGAG GCCGUUAGGC CGAA AAGUUGGC 7682					j
1094 CAGGCUUU U ACUUUCUC 275 GAGAAAGU CUGAUGAG GCCGUUAGGC CGAA AAAGCCUG 7675 1095 AGGCUUUU A CUUUCUCG 276 CGAGAAAG CUGAUGAG GCCGUUAGGC CGAA AAAAGCCU 7676 1098 CUUUUACU U UCUCGCCA 277 UGGCGAGA CUGAUGAG GCCGUUAGGC CGAA AGUAAAAG 7677 1099 UUUUACUU U CUCGCCAA 278 UUGGCGAG CUGAUGAG GCCGUUAGGC CGAA AAGUAAAA 7678 1100 UUUACUUU C UCGCCAAC 279 GUUGGCGA CUGAUGAG GCCGUUAGGC CGAA AAAGUAAAA 7679 1102 UACUUUCU C GCCAACUU 280 AAGUUGGC CUGAUGAG GCCGUUAGGC CGAA AGAAAGUA 7680 1110 CGCCAACUU ACAAGGCC 281 GGCCUUGU CUGAUGAG GCCGUUAGGC CGAA AGUUGGCG 7681 1111 GCCAACUU A CAAGGCCU 282 AGGCCUUG CUGAUGAG GCCGUUAGGC CGAA AAGUUGGC 7682					1
1095 AGGCUUUU A CUUUCUCG 276 CGAGAAAG CUGAUGAG GCCGUUAGGC CGAA AAAAGCCU 7676 1098 CUUUUACU U UCUCGCCA 277 UGGCGAGA CUGAUGAG GCCGUUAGGC CGAA AGUAAAAG 7677 1099 UUUUACUU U CUCGCCAA 278 UUGGCGAG CUGAUGAG GCCGUUAGGC CGAA AAGUAAAA 7678 1100 UUUACUUU C UCGCCAAC 279 GUUGGCGA CUGAUGAG GCCGUUAGGC CGAA AAAGUAAAA 7679 1102 UACUUUCU C GCCAACUU 280 AAGUUGGC CUGAUGAG GCCGUUAGGC CGAA AGAAAGUA 7680 1110 CGCCAACUU ACAAGGCC 281 GGCCUUGU CUGAUGAG GCCGUUAGGC CGAA AGUUGGCG 7681 1111 GCCAACUU A CAAGGCCU 282 AGGCCUUG CUGAUGAG GCCGUUAGGC CGAA AAGUUGGC 7682					
1098 CUUUUACU U UCUCGCCA 277 UGGCGAGA CUGAUGAG GCCGUUAGGC CGAA AGUAAAAG 7677 1099 UUUUACUU U CUCGCCAA 278 UUGGCGAG CUGAUGAG GCCGUUAGGC CGAA AAGUAAAA 7678 1100 UUUACUUU C UCGCCAAC 279 GUUGGCGA CUGAUGAG GCCGUUAGGC CGAA AAAGUAAAA 7679 1102 UACUUUCU C GCCAACUU 280 AAGUUGGC CUGAUGAG GCCGUUAGGC CGAA AGAAAGUA 7680 1110 CGCCAACU U ACAAGGCC 281 GGCCUUGU CUGAUGAG GCCGUUAGGC CGAA AGUUGGCG 7681 1111 GCCAACUU A CAAGGCCU 282 AGGCCUUG CUGAUGAG GCCGUUAGGC CGAA AAGUUGGC 7682					
1099 UUUUACUU U CUCGCCAA 278 UUGGCGAG CUGAUGAG GCCGUUAGGC CGAA AAGUAAAA 7678 1100 UUUACUUU C UCGCCAAC 279 GUUGGCGA CUGAUGAG GCCGUUAGGC CGAA AAAGUAAAA 7679 1102 UACUUUCU C GCCAACUU 280 AAGUUGGC CUGAUGAG GCCGUUAGGC CGAA AGAAAGUA 7680 1110 CGCCAACUU ACAAGGCC 281 GGCCUUGU CUGAUGAG GCCGUUAGGC CGAA AGUUGGCG 7681 1111 GCCAACUU A CAAGGCCU 282 AGGCCUUG CUGAUGAG GCCGUUAGGC CGAA AAGUUGGC 7682					
1100 UUUACUUU C UCGCCAAC 279 GUUGGCGA CUGAUGAG GCCGUUAGGC CGAA AAAGUAAA 7679 1102 UACUUUCU C GCCAACUU 280 AAGUUGGC CUGAUGAG GCCGUUAGGC CGAA AGAAAGUA 7680 1110 CGCCAACU U ACAAGGCC 281 GGCCUUGU CUGAUGAG GCCGUUAGGC CGAA AGUUGGCG 7681 1111 GCCAACUU A CAAGGCCU 282 AGGCCUUG CUGAUGAG GCCGUUAGGC CGAA AAGUUGGC 7682					
1102 UACUUUCU C GCCAACUU 280 AAGUUGGC CUGAUGAG GCCGUUAGGC CGAA AGAAAGUA 7680 1110 CGCCAACU U ACAAGGCC 281 GGCCUUGU CUGAUGAG GCCGUUAGGC CGAA AGUUGGCG 7681 1111 GCCAACUU A CAAGGCCU 282 AGGCCUUG CUGAUGAG GCCGUUAGGC CGAA AAGUUGGC 7682					
1110 CGCCAACU U ACAAGGCC 281 GGCCUUGU CUGAUGAG GCCGUUAGGC CGAA AGUUGGCG 7681 1111 GCCAACUU A CAAGGCCU 282 AGGCCUUG CUGAUGAG GCCGUUAGGC CGAA AAGUUGGC 7682					7679
1111 GCCAACUU A CAAGGCCU 282 AGGCCUUG CUGAUGAG GCCGUUAGGC CGAA AAGUUGGC 7682					7680
1120 CANCECCUL II LICHARGUA UNCULINO CHICALIGAE COCCULINACIO COCCULINACIO			281		7681
1120 CAAGGCCU U UCUAAGUA 283 UACUUAGA CUGAUGAG GCCGUUAGGC CGAA AGGCCUUG 7683					7682
	1120	CAAGGCCU U UCUAAGUA	283	UACUUAGA CUGAUGAG GCCGUUAGGC CGAA AGGCCUUG	7683

1121	AAGGCCUU U CUAAGUAA	1 000	THIS CHAIR CHICALICAG COCCUTIA COC CCAR AN COCCUTI	т
1122	AGGCCUUU C UAAGUAAA	284	UUACUUA CUGAUGAG GCCGUUAGGC CGAA AAGGCCUU UUUACUUA CUGAUGAG GCCGUUAGGC CGAA AAAGGCCU	7684
1124	GCCUUUCU A AGUAAACA	285	UGUUUACU CUGAUGAG GCCGUUAGGC CGAA AGAAAGGC	7685
1128	UUCUAAGU A AACAGUAU	286	AUACUGUU CUGAUGAG GCCGUUAGGC CGAA ACUUAGAA	7686
1135	UAAACAGU A UGUGAACC	287	GGUUCACA CUGAUGAG GCCGUUAGGC CGAA ACUGUUUA	7687
1145	GUGAACCU U UACCCCGU	288		7688
1146	UGAACCUU U ACCCCGUU	289	ACGGGGUA CUGAUGAG GCCGUUAGGC CGAA AGGUUCAC	7689
1147	GAACCUUU A CCCCGUUG	290	AACGGGGU CUGAUGAG GCCGUUAGGC CGAA AAGGUUCA	7690
1154	UACCCCGU U GCUCGGCA	291	CAACGGGG CUGAUGAG GCCGUUAGGC CGAA AAAGGUUC	7691
1158	CCGUUGCU C GGCAACGG	292	UGCCGAGC CUGAUGAG GCCGUUAGGC CGAA ACGGGGUA	7692
1173	GGCCUGGU C UAUGCCAA	293	CCGUUGCC CUGAUGAG GCCGUUAGGC CGAA AGCAACGG	7693
1175	CCUGGUCU A UGCCAAGU	294	UUGGCAUA CUGAUGAG GCCGUUAGGC CGAA ACCAGGCC	7694
1186	CCAAGUGU U UGCUGACG	295	ACUUGGCA CUGAUGAG GCCGUUAGGC CGAA AGACCAGG	7695
1187	CAAGUGUU U GCUGACGC	296	CGUCAGCA CUGAUGAG GCCGUUAGGC CGAA ACACUUGG	7696
1209	CCACUGGU U GGGGCUUG	297	GCGUCAGC CUGAUGAG GCCGUUAGGC CGAA AACACUUG	7697
1216		298	CAAGCCCC CUGAUGAG GCCGUUAGGC CGAA ACCAGUGG	7698
1223	UUGGGGCU U GGCCAUAG	299	CUAUGGCC CUGAUGAG GCCGUUAGGC CGAA AGCCCCAA	7699
1230	UUGGCCAU A GGCCAUCA	300	UGAUGGCC CUGAUGAG GCCGUUAGGC CGAA AUGGCCAA	7700
1249	UAGGCCAU C AGCGCAUG	301	CAUGCGCU CUGAUGAG GCCGUUAGGC CGAA AUGGCCUA	7701
1249	UGGAACCU U UGUGUCUC GGAACCUU U GUGUCUCC	302	GAGACACA CUGAUGAG GCCGUUAGGC CGAA AGGUUCCA	7702
		303	GGAGACAC CUGAUGAG GCCGUUAGGC CGAA AAGGUUCC	7703
1255	CUUUGUGU C UCCUCUGC	304	GCAGAGGA CUGAUGAG GCCGUUAGGC CGAA ACACAAAG	7704
1260	UUGUGUCU C CUCUGCCG UGUCUCCU C UGCCGAUC	305	CGGCAGAG CUGAUGAG GCCGUUAGGC CGAA AGACACAA	7705
1268	CUGCCGAU C CAUACCGC	306	GAUCGGCA CUGAUGAG GCCGUUAGGC CGAA AGGAGACA	7706
1272	CGAUCCAU A CCGCGGAA	307	GCGGUAUG CUGAUGAG GCCGUUAGGC CGAA AUCGGCAG	7707
1283	GCGGAACU C CUAGCCGC	308	UUCCGCGG CUGAUGAG GCCGUUAGGC CGAA AUGGAUCG	7708
1286	GAACUCCU A GCCGCUUG	309	GCGGCUAG CUGAUGAG GCCGUUAGGC CGAA AGUUCCGC	7709
1293	UAGCCGCU U GUUUUGCU	310	CAAGCGGC CUGAUGAG GCCGUUAGGC CGAA AGGAGUUC	7710
1296	CCGCUUGU U UUGCUCGC	311	AGCAAAAC CUGAUGAG GCCGUUAGGC CGAA AGCGGCUA	7711
1297	CGCUUGUU U UGCUCGCA	312	GCGAGCAA CUGAUGAG GCCGUUAGGC CGAA ACAAGCGG	7712
1298	GCUUGUUU U GCUCGCAG	313	UGCGAGCA CUGAUGAG GCCGUUAGGC CGAA AACAAGCG	7713
1302	GUUUUGCU C GCAGCAGG	314	CUGCGAGC CUGAUGAG GCCGUUAGGC CGAA AAACAAGC	7714
1312	CAGCAGGU C UGGGGCAA	315	CCUGCUGC CUGAUGAG GCCGUUAGGC CGAA AGCAAAAC	7715
1325	GCAAAACU C AUCGGGAC	316	UUGCCCCA CUGAUGAG GCCGUUAGGC CGAA ACCUGCUG	7716
1328	AAACUCAU C GGGACUGA	317	GUCCCGAU CUGAUGAG GCCGUUAGGC CGAA AGUUUUGC	7717
1341	CUGACAAU U CUGUCGUG	318	UCAGUCCC CUGAUGAG GCCGUUAGGC CGAA AUGAGUUU	7718
1341	UGACAAUU C UGUCGUGC	319	CACGACA CUGAUGAG GCCGUUAGGC CGAA AUUGUCAG	7719
1346	AAUUCUGU C GUGCUCUC	320	GCACGACA CUGAUGAG GCCGUUAGGC CGAA AAUUGUCA	7720
1352	GUCGUGCU C UCCCGCAA	321	GAGAGCAC CUGAUGAG GCCGUUAGGC CGAA ACAGAAUU UUGCGGGA CUGAUGAG GCCGUUAGGC CGAA AGCACGAC	7721
1354	CGUGCUCU C CCGCAAAU	322		7722
1363	CCGCAAAU A UACAUCAU	323	AUUUGCGG CUGAUGAG GCCGUUAGGC CGAA AGAGCACG AUGAUGUA CUGAUGAG GCCGUUAGGC CGAA AUUUGCGG	7723
1365	GCAAAUAU A CAUCAUUU	324	AAAUGAUG CUGAUGAG GCCGUUAGGC CGAA AUAUUUGC	7724
1369	AUAUACAU C AUUUCCAU	325	AUGGAAAU CUGAUGAG GCCGUUAGGC CGAA AUGUAUAU	7725
1372	UACAUCAU U UCCAUGGC	326	GCCAUGGA CUGAUGAG GCCGUUAGGC CGAA AUGUAUGUA	7726
1373	ACAUCAUU U CCAUGGCU	327	AGCCAUGG CUGAUGAG GCCGUUAGGC CGAA AAUGAUGU	7727
1374	CAUCAUUU C CAUGGCUG	328	CAGCCAUG CUGAUGAG GCCGUUAGGC CGAA AAAUGAUGU CAGCCAUG CUGAUGAG GCCGUUAGGC CGAA AAAUGAUG	7728
1385	UGGCUGCU A GGCUGUGC	329		7729
1406	AACUGGAU C CUACGCGG	330	GCACAGCC CUGAUGAG GCCGUUAGGC CGAA AGCAGCCA CCGCGUAG CUGAUGAG GCCGUUAGGC CGAA AUCCAGUU	7730
1409	UGGAUCCU A CGCGGGAC	331	GUCCCGCG CUGAUGAG GCCGUUAGGC CGAA AUCCAGUU GUCCCGCG CUGAUGAG GCCGUUAGGC CGAA AGGAUCCA	7731
1420	CGGGACGU C CUUUGUUU	332	AAACAAAG CUGAUGAG GCCGUUAGGC CGAA AGGAUCCA	7732
1423	GACGUCCU U UGUUUACG	333	CGUAAACA CUGAUGAG GCCGUUAGGC CGAA ACGUCCCG	7733
		334	COMMITTER COGNOGAG GCCGOUAGGC CGAA AGGACGUC	7734

1424	ACGUCCUU U GUUUACGU	225	ACGUAAAC CUGAUGAG GCCGUUAGGC CGAA AAGGACGU	T
1424	UCCUUUGU U UACGUCCC	335	GGGACGUA CUGAUGAG GCCGUUAGGC CGAA ACAAAGGA	7735
1428	CCUUUGUU U ACGUCCCG	336	CGGGACGU CUGAUGAG GCCGUUAGGC CGAA AACAAAGG	7736
1429	CUUUGUUU A CGUCCCGU	337	ACGGGACG CUGAUGAG GCCGUUAGGC CGAA AAACAAAG	7737
		338	GCCGACGG CUGAUGAG GCCGUUAGGC CGAA ACGUAAAC	7738
1433	GUUUACGU C CCGUCGGC	339	UCAGCGCC CUGAUGAG GCCGUUAGGC CGAA ACGGAACG	7739
1438	CGUCCCGU C GGCGCUGA	340		7740
1449	CGCUGAAU C CCGCGGAC	341	GUCCGCGG CUGAUGAG GCCGUUAGGC CGAA AUUCAGCG	7741
1465	CGACCCCU C CCGGGGCC	342	GGCCCCGG CUGAUGAG GCCGUUAGGC CGAA AGGGGUCG	7742
1477	GGGCCGCU U GGGGCUCU	343	AGAGCCCC CUGAUGAG GCCGUUAGGC CGAA AGCGGCCC	7743
1484	UUGGGGCU C UACCGCCC	344	GGGCGGUA CUGAUGAG GCCGUUAGGC CGAA AGCCCCAA	7744
1486	GGGGCUCU A CCGCCCGC	345	GCGGGCGG CUGAUGAG GCCGUUAGGC CGAA AGAGCCCC	7745
1496	CGCCCGCU U CUCCGCCU	346	AGGCGGAG CUGAUGAG GCCGUUAGGC CGAA AGCGGGCG	7746
1497	GCCCGCUU C UCCGCCUA	347_	UAGGCGGA CUGAUGAG GCCGUUAGGC CGAA AAGCGGGC	7747
1499	CCGCUUCU C CGCCUAUU	348	AAUAGGCG CUGAUGAG GCCGUUAGGC CGAA AGAAGCGG	7748
1505	CUCCGCCU A UUGUACCG	349	CGGUACAA CUGAUGAG GCCGUUAGGC CGAA AGGCGGAG	7749
1507	CCGCCUAU U GUACCGAC	350	GUCGGUAC CUGAUGAG GCCGUUAGGC CGAA AUAGGCGG	7750
1510	CCUAUUGU A CCGACCGU	351	ACGGUCGG CUGAUGAG GCCGUUAGGC CGAA ACAAUAGG	7751
1519	CCGACCGU C CACGGGGC	352	GCCCCGUG CUGAUGAG GCCGUUAGGC CGAA ACGGUCGG	7752
1534	GCGCACCU C UCUUUACG	353	CGUAAAGA CUGAUGAG GCCGUUAGGC CGAA AGGUGCGC	7753
1536	GCACCUCU C UUUACGCG	354	CGCGUAAA CUGAUGAG GCCGUUAGGC CGAA AGAGGUGC	7754
1538	ACCUCUCU U UACGCGGA	355	UCCGCGUA CUGAUGAG GCCGUUAGGC CGAA AGAGAGGU	7755
1539	CCUCUCUU U ACGCGGAC	356	GUCCGCGU CUGAUGAG GCCGUUAGGC CGAA AAGAGAGG	7756
1540	CUCUCUUU A CGCGGACU	357	AGUCCGCG CUGAUGAG GCCGUUAGGC CGAA AAAGAGAG	7757
1549	CGCGGACU C CCCGUCUG	358	CAGACGGG CUGAUGAG GCCGUUAGGC CGAA AGUCCGCG	7758
1555	CUCCCCGU C UGUGCCUU	359	AAGGCACA CUGAUGAG GCCGUUAGGC CGAA ACGGGGAG	7759
1563	CUGUGCCU U CUCAUCUG	360	CAGAUGAG CUGAUGAG GCCGUUAGGC CGAA AGGCACAG	7760
1564	UGUGCCUU C UCAUCUGC	361	GCAGAUGA CUGAUGAG GCCGUUAGGC CGAA AAGGCACA	7761
1566	UGCCUUCU C AUCUGCCG	362	CGGCAGAU CUGAUGAG GCCGUUAGGC CGAA AGAAGGCA	7762
1569	CUUCUCAU C UGCCGGAC	363	GUCCGGCA CUGAUGAG GCCGUUAGGC CGAA AUGAGAAG	7763
1588	UGUGCACU U CGCUUCAC	364	GUGAAGCG CUGAUGAG GCCGUUAGGC CGAA AGUGCACA	7764
1589	GUGCACUU C GCUUCACC	365	GGUGAAGC CUGAUGAG GCCGUUAGGC CGAA AAGUGCAC	7765
1593	ACUUCGCU U CACCUCUG	366	CAGAGGUG CUGAUGAG GCCGUUAGGC CGAA AGCGAAGU	7766
1594	CUUCGCUU C ACCUCUGC	367	GCAGAGGU CUGAUGAG GCCGUUAGGC CGAA AAGCGAAG	7767
1599	CUUCACCU C UGCACGUC	368	GACGUGCA CUGAUGAG GCCGUUAGGC CGAA AGGUGAAG	7768
1607	CUGCACGU C GCAUGGAG	369	CUCCAUGC CUGAUGAG GCCGUUAGGC CGAA ACGUGCAG	7769
1651	CCCAAGGU C UUGCAUAA	370	UUAUGCAA CUGAUGAG GCCGUUAGGC CGAA ACCUUGGG	7770
1653	CAAGGUCU U GCAUAAGA	371	UCUUAUGC CUGAUGAG GCCGUUAGGC CGAA AGACCUUG	7771
1658	UCUUGCAU A AGAGGACU	372	AGUCCUCU CUGAUGAG GCCGUUAGGC CGAA AUGCAAGA	7772
1667	AGAGGACU C UUGGACUU	373	AAGUCCAA CUGAUGAG GCCGUUAGGC CGAA AGUCCUCU	7773
1669	AGGACUCU U GGACUUUC	374	GAAAGUCC CUGAUGAG GCCGUUAGGC CGAA AGAGUCCU	7774
1675	CUUGGACU U UCAGCAAU	375	AUUGCUGA CUGAUGAG GCCGUUAGGC CGAA AGUCCAAG	7775
1676	UUGGACUU U CAGCAAUG	376	CAUUGCUG CUGAUGAG GCCGUUAGGC CGAA AAGUCCAA	7776
1677	UGGACUUU C AGCAAUGU	377	ACAUUGCU CUGAUGAG GCCGUUAGGC CGAA AAAGUCCA	7777
1686	AGCAAUGU C AACGACCG	378	CGGUCGUU CUGAUGAG GCCGUUAGGC CGAA ACAUUGCU	7778
1699	ACCGACCU U GAGGCAUA	379	UAUGCCUC CUGAUGAG GCCGUUAGGC CGAA AGGUCGGU	7779
1707	UGAGGCAU A CUUCAAAG	380	CUUUGAAG CUGAUGAG GCCGUUAGGC CGAA AUGCCUCA	7780
1710	GGCAUACU U CAAAGACU	381	AGUCUUUG CUGAUGAG GCCGUUAGGC CGAA AGUAUGCC	7781
1711	GCAUACUU C AAAGACUG	382	CAGUCUUU CUGAUGAG GCCGUUAGGC CGAA AAGUAUGC	7782
1725	CUGUGUGU U UAAUGAGU	383	ACUCAUUA CUGAUGAG GCCGUUAGGC CGAA ACACACAG	7783
1726	UGUGUGUU U AAUGAGUG	384	CACUCAUU CUGAUGAG GCCGUUAGGC CGAA AACACACA	7784
1727	GUGUGUUU A AUGAGUGG	385	CCACUCAU CUGAUGAG GCCGUUAGGC CGAA AAACACAC	
		305	TOTAL TOTAL CONTROL CONTROL TENENCHE	7785

1743	GGAGGAGU U GGGGGAGG	386	CCUCCCC CUGAUGAG GCCGUUAGGC CGAA ACUCCUCC	7786
1756	GAGGAGGU U AGGUUAAA	387	UUUAACCU CUGAUGAG GCCGUUAGGC CGAA ACCUCCUC	7787
1757	AGGAGGUU A GGUUAAAG	388	CUUUAACC CUGAUGAG GCCGUUAGGC CGAA AACCUCCU	7788
1761	GGUUAGGU U AAAGGUCU	389	AGACCUUU CUGAUGAG GCCGUUAGGC CGAA ACCUAACC	7789
1762	GUUAGGUU A AAGGUCUU	390	AAGACCUU CUGAUGAG GCCGUUAGGC CGAA AACCUAAC	7790
1768	UUAAAGGU C UUUGUACU	391	AGUACAAA CUGAUGAG GCCGUUAGGC CGAA ACCUUUAA	7791
1770	AAAGGUCU U UGUACUAG	392	CUAGUACA CUGAUGAG GCCGUUAGGC CGAA AGACCUUU	7792
1771	AAGGUCUU U GUACUAGG	393	CCUAGUAC CUGAUGAG GCCGUUAGGC CGAA AAGACCUU	7793
1774	GUCUUUGU A CUAGGAGG	394	CCUCCUAG CUGAUGAG GCCGUUAGGC CGAA ACAAAGAC	7794
1777	UUUGUACU A GGAGGCUG		CAGCCUCC CUGAUGAG GCCGUUAGGC CGAA AGUACAAA	
1787	GAGGCUGU A GGCAUAAA	395	UUUAUGCC CUGAUGAG GCCGUUAGGC CGAA ACAGCCUC	7795
1793	GUAGGCAU A AAUUGGUG	396 397	CACCAAUU CUGAUGAG GCCGUUAGGC CGAA AUGCCUAC	
1797	GCAUAAAU U GGUGUGUU		AACACACC CUGAUGAG GCCGUUAGGC CGAA AUUUAUGC	7797
1805	UGGUGUGU U CACCAGCA	398	UGCUGGUG CUGAUGAG GCCGUUAGGC CGAA ACACACCA	
1806	GGUGUGUU C ACCAGCAC	399 400	GUGCUGGU CUGAUGAG GCCGUUAGGC CGAA AACACACC	7799
1824	AUGCAACU U UUUCACCU		AGGUGAAA CUGAUGAG GCCGUUAGGC CGAA AGUUGCAU	7800
1825	UGCAACUU U UUCACCUC	401	GAGGUGAA CUGAUGAG GCCGUUAGGC CGAA AAGUUGCA	7801
1826	GCAACUUU U UCACCUCU	402	AGAGGUGA CUGAUGAG GCCGUUAGGC CGAA AAAGUUGC	7802
1827	CAACUUUU U CACCUCUG	403	CAGAGGUG CUGAUGAG GCCGUUAGGC CGAA AAAAGUUG	7803
1828	AACUUUUU C ACCUCUGC	404	GCAGAGGU CUGAUGAG GCCGUUAGGC CGAA AAAAAGUU	7804
1833	UUUCACCU C UGCCUAAU	405_	AUUAGGCA CUGAUGAG GCCGUUAGGC CGAA AGGUGAAA	7805
1839	CUCUGCCU A AUCAUCUC	406	GAGAUGAU CUGAUGAG GCCGUUAGGC CGAA AGGCAGAG	7806
1842	UGCCUAAU C AUCUCAUG	407	CAUGAGAU CUGAUGAG GCCGUUAGGC CGAA AUUAGGCA	7807
1845	CUAAUCAU C UCAUGUUC	408	GAACAUGA CUGAUGAG GCCGUUAGGC CGAA AUGAUUAG	7808
1847	AAUCAUCU C AUGUUCAU	409	AUGAACAU CUGAUGAG GCCGUUAGGC CGAA AGAUGAUU	7809
1852	UCUCAUGU U CAUGUCCU	410	AGGACAUG CUGAUGAG GCCGUUAGGC CGAA ACAUGAGA	7810
1853	CUCAUGUU C AUGUCCUA	411	UAGGACAU CUGAUGAG GCCGUUAGGC CGAA AACAUGAG	7811
1858	GUUCAUGU C CUACUGUU	412	AACAGUAG CUGAUGAG GCCGUUAGGC CGAA ACAUGAAC	7812
1861	CAUGUCCU A CUGUUCAA	413	UUGAACAG CUGAUGAG GCCGUUAGGC CGAA AGGACAUG	7813
1866	CCUACUGU U CAAGCCUC	414	GAGGCUUG CUGAUGAG GCCGUUAGGC CGAA ACAGUAGG	7814
1867	CUACUGUU C AAGCCUCC	415	GGAGGCUU CUGAUGAG GCCGUUAGGC CGAA AACAGUAG	7815
1874	UCAAGCCU C CAAGCUGU	416	ACAGCUUG CUGAUGAG GCCGUUAGGC CGAA AGGCUUGA	7816
1887	CUGUGCCU U GGGUGGCU	417	AGCCACCC CUGAUGAG GCCGUUAGGC CGAA AGGCACAG	7817
1896	GGGUGGCU U UGGGGCAU	418	AUGCCCCA CUGAUGAG GCCGUUAGGC CGAA AGCCACCC	7818
1897	GGUGGCUU U GGGGCAUG	419	CAUGCCCC CUGAUGAG GCCGUUAGGC CGAA AAGCCACC	7819
1911	AUGGACAU U GACCCGUA	420	UACGGGUC CUGAUGAG GCCGUUAGGC CGAA AUGUCCAU	7820
1919	UGACCCGU A UAAAGAAU	421 422	AUUCUUUA CUGAUGAG GCCGUUAGGC CGAA ACGGGUCA	7821 7822
1921	ACCCGUAU A AAGAAUUU		AAAUUCUU CUGAUGAG GCCGUUAGGC CGAA AUACGGGU	
1928	UAAAGAAU U UGGAGCUU	423	AAGCUCCA CUGAUGAG GCCGUUAGGC CGAA AUUCUUUA	7823
1929	AAAGAAUU U GGAGCUUC	424 425	GAAGCUCC CUGAUGAG GCCGUUAGGC CGAA AAUUCUUU	7824
1936	UUGGAGCU U CUGUGGAG	425	CUCCACAG CUGAUGAG GCCGUUAGGC CGAA AGCUCCAA	7825
1937	UGGAGCUU C UGUGGAGU	425	ACUCCACA CUGAUGAG GCCGUUAGGC CGAA AAGCUCCA	7826
1946	UGUGGAGU U ACUCUCUU	427	AAGAGAGU CUGAUGAG GCCGUUAGGC CGAA ACUCCACA	7827
1947	GUGGAGUU A CUCUCUUU	428	AAAGAGAG CUGAUGAG GCCGUUAGGC CGAA AACUCCAC	7828
1950	GAGUUACU C UCUUUUUU		AAAAAAGA CUGAUGAG GCCGUUAGGC CGAA AGUAACUC	7829
1952	GUUACUCU C UUUUUUGC	430	GCAAAAAA CUGAUGAG GCCGUUAGGC CGAA AGAGUAAC	7830
1954	UACUCUCU U UUUUGCCU	431	AGGCAAAA CUGAUGAG GCCGUUAGGC CGAA AGAGAGUA	7831
1955	ACUCUCUU U UUUGCCUU	432	AAGGCAAA CUGAUGAG GCCGUUAGGC CGAA AAGAGAGU	7832
1956	CUCUCUUU U UUGCCUUC	433	GAAGGCAA CUGAUGAG GCCGUUAGGC CGAA AAAGAGAG	7833
1957	UCUCUUUU U UGCCUUCU	434	AGAAGGCA CUGAUGAG GCCGUUAGGC CGAA AAAAGAGA	7834
1958	CUCUUUUU U GCCUUCUG	435	CAGAAGGC CUGAUGAG GCCGUUAGGC CGAA AAAAAGAG	7835
	20000000 0 00000000	436	SHORMAN AND SCOULAND GCCGOUNGSC COM ANAMORG	7836

1963	UUUUGCCU U CUGACUUC	437	GAAGUCAG CUGAUGAG GCCGUUAGGC CGAA AGGCAAAA	7027
1964	UUUGCCUU C UGACUUCU	437	AGAAGUCA CUGAUGAG GCCGUUAGGC CGAA AAGGCAAA	7837 7838
1970	UUCUGACU U CUUUCCUU	439	AAGGAAAG CUGAUGAG GCCGUUAGGC CGAA AGUCAGAA	7839
1971	UCUGACUU C UUUCCUUC	440	GAAGGAAA CUGAUGAG GCCGUUAGGC CGAA AAGUCAGA	7840
1973	UGACUUCU U UCCUUCUA	441	UAGAAGGA CUGAUGAG GCCGUUAGGC CGAA AGAAGUCA	7841
1974	GACUUCUU U CCUUCUAU	442	AUAGAAGG CUGAUGAG GCCGUUAGGC CGAA AAGAAGUC	7842
1975	ACUUCUUU C CUUCUAUU	442	AAUAGAAG CUGAUGAG GCCGUUAGGC CGAA AAAGAAGU	7843
1978	UCUUUCCU U CUAUUCGA	444	UCGAAUAG CUGAUGAG GCCGUUAGGC CGAA AGGAAAGA	7844
1979	CUUUCCUU C UAUUCGAG	444	CUCGAAUA CUGAUGAG GCCGUUAGGC CGAA AAGGAAAG	7845
1981	UUCCUUCU A UUCGAGAU	445	AUCUCGAA CUGAUGAG GCCGUUAGGC CGAA AGAAGGAA	7846
1983	CCUUCUAU U CGAGAUCU	446	AGAUCUCG CUGAUGAG GCCGUUAGGC CGAA AUAGAAGG	7847
1984	CUUCUAUU C GAGAUCUC	448	GAGAUCUC CUGAUGAG GCCGUUAGGC CGAA AAUAGAAG	7848
1990	UUCGAGAU C UCCUCGAC	449	GUCGAGGA CUGAUGAG GCCGUUAGGC CGAA AUCUCGAA	7849
1992	CGAGAUCU C CUCGACAC	450	GUGUCGAG CUGAUGAG GCCGUUAGGC CGAA AGAUCUCG	7850
1995	GAUCUCCU C GACACCGC	451	GCGGUGUC CUGAUGAG GCCGUUAGGC CGAA AGGAGAUC	7851
2006	CACCGCCU C UGCUCUGU	452	ACAGAGCA CUGAUGAG GCCGUUAGGC CGAA AGGCGGUG	7852
2011	CCUCUGCU C UGUAUCGG	453	CCGAUACA CUGAUGAG GCCGUUAGGC CGAA AGCAGAGG	7853
2015	UGCUCUGU A UCGGGGGG	454	CCCCCGA CUGAUGAG GCCGUUAGGC CGAA ACAGAGCA	7854
2017	CUCUGUAU C GGGGGGCC	455	GCCCCCC CUGAUGAG GCCGUUAGGC CGAA AUACAGAG	7855
2027	GGGGGCCU U AGAGUCUC	456	GAGACUCU CUGAUGAG GCCGUUAGGC CGAA AGGCCCCC	7856
2028	GGGGCCUU A GAGUCUCC	457	GGAGACUC CUGAUGAG GCCGUUAGGC CGAA AAGGCCCC	7857
2033	CUUAGAGU C UCCGGAAC	458	GUUCCGGA CUGAUGAG GCCGUUAGGC CGAA ACUCUAAG	7858
2035	UAGAGUCU C CGGAACAU	459	AUGUUCCG CUGAUGAG GCCGUUAGGC CGAA AGACUCUA	7859
2044	CGGAACAU U GUUCACCU	460	AGGUGAAC CUGAUGAG GCCGUUAGGC CGAA AUGUUCCG	7860
2047	AACAUUGU U CACCUCAC	461	GUGAGGUG CUGAUGAG GCCGUUAGGC CGAA ACAAUGUU	7861
2048	ACAUUGUU C ACCUCACC	462	GGUGAGGU CUGAUGAG GCCGUUAGGC CGAA AACAAUGU	7862
2053	GUUCACCU C ACCAUACG	463	CGUAUGGU CUGAUGAG GCCGUUAGGC CGAA AGGUGAAC	7863
2059	CUCACCAU A CGGCACUC	464	GAGUGCCG CUGAUGAG GCCGUUAGGC CGAA AUGGUGAG	7864
2067	ACGGCACU C AGGCAAGC	465	GCUUGCCU CUGAUGAG GCCGUUAGGC CGAA AGUGCCGU	7865
2077	GGCAAGCU A UUCUGUGU	466	ACACAGAA CUGAUGAG GCCGUUAGGC CGAA AGCUUGCC	7866
2079	CAAGCUAU U CUGUGUUG	467	CAACACAG CUGAUGAG GCCGUUAGGC CGAA AUAGCUUG	7867
2080	AAGCUAUU C UGUGUUGG	468	CCAACACA CUGAUGAG GCCGUUAGGC CGAA AAUAGCUU	7868
2086	UUCUGUGU U GGGGUGAG	469	CUCACCCC CUGAUGAG GCCGUUAGGC CGAA ACACAGAA	7869
2096	GGGUGAGU U GAUGAAUC	470	GAUUCAUC CUGAUGAG GCCGUUAGGC CGAA ACUCACCC	7870
2104	UGAUGAAU C UAGCCACC	471	GGUGGCUA CUGAUGAG GCCGUUAGGC CGAA AUUCAUCA	7871
2106	AUGAAUCU A GCCACCUG	472	CAGGUGGC CUGAUGAG GCCGUUAGGC CGAA AGAUUCAU	7872
2125	UGGGAAGU A AUUUGGAA	473	UUCCAAAU CUGAUGAG GCCGUUAGGC CGAA ACUUCCCA	7873
2128	GAAGUAAU U UGGAAGAU	474	AUCUUCCA CUGAUGAG GCCGUUAGGC CGAA AUUACUUC	7874
2129	AAGUAAUU U GGAAGAUC	475	GAUCUUCC CUGAUGAG GCCGUUAGGC CGAA AAUUACUU	7875
2137	UGGAAGAU C CAGCAUCC	476	GGAUGCUG CUGAUGAG GCCGUUAGGC CGAA AUCUUCCA	7876
2144	UCCAGCAU C CAGGGAAU	477	AUUCCCUG CUGAUGAG GCCGUUAGGC CGAA AUGCUGGA	7877
2153	CAGGGAAU U AGUAGUCA	478	UGACUACU CUGAUGAG GCCGUUAGGC CGAA AUUCCCUG	7878
2154	AGGGAAUU A GUAGUCAG	479	CUGACUAC CUGAUGAG GCCGUUAGGC CGAA AAUUCCCU	7879
2157	GAAUUAGU A GUCAGCUA	480	UAGCUGAC CUGAUGAG GCCGUUAGGC CGAA ACUAAUUC	7880
2160	UUAGUAGU C AGCUAUGU	481	ACAUAGCU CUGAUGAG GCCGUUAGGC CGAA ACUACUAA	7881
2165	AGUCAGCU A UGUCAACG	482	CGUUGACA CUGAUGAG GCCGUUAGGC CGAA AGCUGACU	7882
2169	AGCUAUGU C AACGUUAA	483	UUAACGUU CUGAUGAG GCCGUUAGGC CGAA ACAUAGCU	7883
2175	GUCAACGU U AAUAUGGG	484	CCCAUAUU CUGAUGAG GCCGUUAGGC CGAA ACGUUGAC	7884
2176	UCAACGUU A AUAUGGGC	485	GCCCAUAU CUGAUGAG GCCGUUAGGC CGAA AACGUUGA	7885
2179	ACGUUAAU A UGGGCCUA	486	UAGGCCCA CUGAUGAG GCCGUUAGGC CGAA AUUAACGU	7886
2187	AUGGGCCU A AAAAUCAG	487	CUGAUUUU CUGAUGAG GCCGUUAGGC CGAA AGGCCCAU	7887
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2193	CUAAAAAU C AGACAACU	488	AGUUGUCU CUGAUGAG GCCGUUAGGC CGAA AUUUUUAG	7888
2202	AGACAACU A UUGUGGUU	489	AACCACAA CUGAUGAG GCCGUUAGGC CGAA AGUUGUCU	7889
2204	ACAACUAU U GUGGUUUC	490	GAAACCAC CUGAUGAG GCCGUUAGGC CGAA AUAGUUGU	7890
2210	AUUGUGGU U UCACAUUU	491	AAAUGUGA CUGAUGAG GCCGUUAGGC CGAA ACCACAAU	7891
2211	UUGUGGUU U CACAUUUC	492	GAAAUGUG CUGAUGAG GCCGUUAGGC CGAA AACCACAA	7892
2212	UGUGGUUU C ACAUUUCC	493	GGAAAUGU CUGAUGAG GCCGUUAGGC CGAA AAACCACA	7893
2217	UUUCACAU U UCCUGUCU	494	AGACAGGA CUGAUGAG GCCGUUAGGC CGAA AUGUGAAA	7894
2218	UUCACAUU U CCUGUCUU	495	AAGACAGG CUGAUGAG GCCGUUAGGC CGAA AAUGUGAA	7895
2219	UCACAUUU C CUGUCUUA	496	UAAGACAG CUGAUGAG GCCGUUAGGC CGAA AAAUGUGA	7896
2224	UUUCCUGU C UUACUUUU	497	AAAAGUAA CUGAUGAG GCCGUUAGGC CGAA ACAGGAAA	7897
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2227	CCUGUCUU A CUUUUGGG	499	CCCAAAAG CUGAUGAG GCCGUUAGGC CGAA AAGACAGG	7899
2230	GUCUUACU U UUGGGCGA	500	UCGCCCAA CUGAUGAG GCCGUUAGGC CGAA AGUAAGAC	7900
2231	UCUUACUU U UGGGCGAG	501	CUCGCCCA CUGAUGAG GCCGUUAGGC CGAA AAGUAAGA	7901
2232	CUUACUUU U GGGCGAGA	502	UCUCGCCC CUGAUGAG GCCGUUAGGC CGAA AAAGUAAG	7902
2247	GAAACUGU U CUUGAAUA	503	UAUUCAAG CUGAUGAG GCCGUUAGGC CGAA ACAGUUUC	7903
2248	AAACUGUU C UUGAAUAU	504	AUAUUCAA CUGAUGAG GCCGUUAGGC CGAA AACAGUUU	7904
2250	ACUGUUCU U GAAUAUUU	505	AAAUAUUC CUGAUGAG GCCGUUAGGC CGAA AGAACAGU	7905
2255	UCUUGAAU A UUUGGUGU	506	ACACCAAA CUGAUGAG GCCGUUAGGC CGAA AUUCAAGA	7906
2257	UUGAAUAU U UGGUGUCU	507	AGACACCA CUGAUGAG GCCGUUAGGC CGAA AUAUUCAA	7907
2258	UGAAUAUU U GGUGUCUU	508	AAGACACC CUGAUGAG GCCGUUAGGC CGAA AAUAUUCA	7908
2264	UUUGGUGU C UUUUGGAG	509	CUCCAAAA CUGAUGAG GCCGUUAGGC CGAA ACACCAAA	7909
2266	UGGUGUCU U UUGGAGUG	510	CACUCCAA CUGAUGAG GCCGUUAGGC CGAA AGACACCA	7910
2267	GGUGUCUU U UGGAGUGU	511	ACACUCCA CUGAUGAG GCCGUUAGGC CGAA AAGACACC	7911
2268	GUGUCUUU U GGAGUGUG	512	CACACUCC CUGAUGAG GCCGUUAGGC CGAA AAAGACAC	7912
2280	GUGUGGAU U CGCACUCC	513	GGAGUGCG CUGAUGAG GCCGUUAGGC CGAA AUCCACAC	7913
2281	UGUGGAUU C GCACUCCU	514	AGGAGUGC CUGAUGAG GCCGUUAGGC CGAA AAUCCACA	7914
2287	UUCGCACU C CUCCUGCA	515	UGCAGGAG CUGAUGAG GCCGUUAGGC CGAA AGUGCGAA	7915
2290	GCACUCCU C CUGCAUAU	516	AUAUGCAG CUGAUGAG GCCGUUAGGC CGAA AGGAGUGC	7916
2297	UCCUGCAU A UAGACCAC	517	GUGGUCUA CUGAUGAG GCCGUUAGGC CGAA AUGCAGGA	7917
2299	CUGCAUAU A GACCACCA	518	UGGUGGUC CUGAUGAG GCCGUUAGGC CGAA AUAUGCAG	7918
2317	AUGCCCCU A UCUUAUCA	519	UGAUAAGA CUGAUGAG GCCGUUAGGC CGAA AGGGGCAU	7919
2319	GCCCCUAU C UUAUCAAC	520	GUUGAUAA CUGAUGAG GCCGUUAGGC CGAA AUAGGGGC	7920
2321	CCCUAUCU U AUCAACAC	521	GUGUUGAU CUGAUGAG GCCGUUAGGC CGAA AGAUAGGG	7921
2322	CCUAUCUU A UCAACACU	522	AGUGUUGA CUGAUGAG GCCGUUAGGC CGAA AAGAUAGG	7922
2324	UAUCUUAU C AACACUUC	523	GAAGUGUU CUGAUGAG GCCGUUAGGC CGAA AUAAGAUA	7923
2331	UCAACACU U CCGGAAAC	524	GUUUCCGG CUGAUGAG GCCGUUAGGC CGAA AGUGUUGA	7924
2332	CAACACUU C CGGAAACU	525	AGUUUCCG CUGAUGAG GCCGUUAGGC CGAA AAGUGUUG	7925
2341	CGGAAACU A CUGUUGUU	526	AACAACAG CUGAUGAG GCCGUUAGGC CGAA AGUUUCCG	7926
2346	ACUACUGU U GUUAGACG	527	CGUCUAAC CUGAUGAG GCCGUUAGGC CGAA ACAGUAGU	7927
2349	ACUGUUGU U AGACGAAG	528	CUUCGUCU CUGAUGAG GCCGUUAGGC CGAA ACAACAGU	7928
2350	CUGUUGUU A GACGAAGA	529	UCUUCGUC CUGAUGAG GCCGUUAGGC CGAA AACAACAG	7929
2366	AGGCAGGU C CCCUAGAA	530	UUCUAGGG CUGAUGAG GCCGUUAGGC CGAA ACCUGCCU	7930
2371	GGUCCCCU A GAAGAAGA	531	UCUUCUUC CUGAUGAG GCCGUUAGGC CGAA AGGGGACC	7931
2383	GAAGAACU C CCUCGCCU	532	AGGCGAGG CUGAUGAG GCCGUUAGGC CGAA AGUUCUUC	7932
2387	AACUCCCU C GCCUCGCA	533	UGCGAGGC CUGAUGAG GCCGUUAGGC CGAA AGGGAGUU	7933
2392	CCUCGCCU C GCAGACGA	534	UCGUCUGC CUGAUGAG GCCGUUAGGC CGAA AGGCGAGG	7934
2405	ACGAAGGU C UCAAUCGC	535	GCGAUUGA CUGAUGAG GCCGUUAGGC CGAA ACCUUCGU	7935
2407	GAAGGUCU C AAUCGCCG	536	CGGCGAUU CUGAUGAG GCCGUUAGGC CGAA AGACCUUC	7936
2411	GUCUCAAU C GCCGCGUC	537	GACGCGGC CUGAUGAG GCCGUUAGGC CGAA AUUGAGAC	7937
2419	CGCCGCGU C GCAGAAGA	538	UCUUCUGC CUGAUGAG GCCGUUAGGC CGAA ACGCGGCG	7938

2429	CAGAAGAU C UCAAUCUC	539	GAGAUUGA CUGAUGAG GCCGUUAGGC CGAA AUCUUCUG	7939
2431	GAAGAUCU C AAUCUCGG	540	CCGAGAUU CUGAUGAG GCCGUUAGGC CGAA AGAUCUUC	7940
2435	AUCUCAAU C UCGGGAAU	541	AUUCCCGA CUGAUGAG GCCGUUAGGC CGAA AUUGAGAU	7941
2437	CUCAAUCU C GGGAAUCU	542	AGAUUCCC CUGAUGAG GCCGUUAGGC CGAA AGAUUGAG	7942
2444	UCGGGAAU C UCAAUGUU	543	AACAUUGA CUGAUGAG GCCGUUAGGC CGAA AUUCCCGA	7943
2446	GGGAAUCU C AAUGUUAG	544	CUAACAUU CUGAUGAG GCCGUUAGGC CGAA AGAUUCCC	7944
2452	CUCAAUGU U AGUAUUCC	545	GGAAUACU CUGAUGAG GCCGUUAGGC CGAA ACAUUGAG	7945
2453	UCAAUGUU A GUAUUCCU	546	AGGAAUAC CUGAUGAG GCCGUUAGGC CGAA AACAUUGA	7946
2456	AUGUUAGU A UUCCUUGG	547	CCAAGGAA CUGAUGAG GCCGUUAGGC CGAA ACUAACAU	7947
2458	GUUAGUAU U CCUUGGAC	548	GUCCAAGG CUGAUGAG GCCGUUAGGC CGAA AUACUAAC	7948
2459	UUAGUAUU C CUUGGACA	549	UGUCCAAG CUGAUGAG GCCGUUAGGC CGAA AAUACUAA	7949
2462	GUAUUCCU U GGACACAU	550	AUGUGUCC CUGAUGAG GCCGUUAGGC CGAA AGGAAUAC	7950
2471	GGACACAU A AGGUGGGA	551	UCCCACCU CUGAUGAG GCCGUUAGGC CGAA AUGUGUCC	7951
2484	GGGAAACU U UACGGGGC	552	GCCCCGUA CUGAUGAG GCCGUUAGGC CGAA AGUUUCCC	7952
2485	GGAAACUU U ACGGGGCU	553	AGCCCCGU CUGAUGAG GCCGUUAGGC CGAA AAGUUUCC	7953
2486	GAAACUUU A CGGGGCUU	554	AAGCCCCG CUGAUGAG GCCGUUAGGC CGAA AAAGUUUC	7954
2494	ACGGGGCU U UAUUCUUC	555	GAAGAAUA CUGAUGAG GCCGUUAGGC CGAA AGCCCCGU	7955
2495	CGGGGCUU U AUUCUUCU	556	AGAAGAAU CUGAUGAG GCCGUUAGGC CGAA AAGCCCCG	7956
2496	GGGGCUUU A UUCUUCUA	557	UAGAAGAA CUGAUGAG GCCGUUAGGC CGAA AAAGCCCC	7957
2498	GGCUUUAU U CUUCUACG	558	CGUAGAAG CUGAUGAG GCCGUUAGGC CGAA AUAAAGCC	7958
2499	GCUUUAUU C UUCUACGG	559	CCGUAGAA CUGAUGAG GCCGUUAGGC CGAA AAUAAAGC	7959
2501	UUUAUUCU U CUACGGUA	560	UACCGUAG CUGAUGAG GCCGUUAGGC CGAA AGAAUAAA	7960
2502	UUAUUCUU C UACGGUAC	561	GUACCGUA CUGAUGAG GCCGUUAGGC CGAA AAGAAUAA	7961
2504	AUUCUUCU A CGGUACCU	562	AGGUACCG CUGAUGAG GCCGUUAGGC CGAA AGAAGAAU	7962
2509	UCUACGGU A CCUUGCUU	563	AAGCAAGG CUGAUGAG GCCGUUAGGC CGAA ACCGUAGA	7963
2513	CGGUACCU U GCUUUAAU	564	AUUAAAGC CUGAUGAG GCCGUUAGGC CGAA AGGUACCG	7964
2517	ACCUUGCU U UAAUCCUA	565	UAGGAUUA CUGAUGAG GCCGUUAGGC CGAA AGCAAGGU	7965
2518	CCUUGCUU U AAUCCUAA	566	UUAGGAUU CUGAUGAG GCCGUUAGGC CGAA AAGCAAGG	7966
2519	CUUGCUUU A AUCCUAAA	567	UUUAGGAU CUGAUGAG GCCGUUAGGC CGAA AAAGCAAG	7967
2522	GCUUUAAU C CUAAAUGG	568	CCAUUUAG CUGAUGAG GCCGUUAGGC CGAA AUUAAAGC	7968
2525	UUAAUCCU A AAUGGCAA	569	UUGCCAUU CUGAUGAG GCCGUUAGGC CGAA AGGAUUAA	7969
2537	GGCAAACU C CUUCUUUU	570	AAAAGAAG CUGAUGAG GCCGUUAGGC CGAA AGUUUGCC	7970
2540	AAACUCCU U CUUUUCCU	571	AGGAAAAG CUGAUGAG GCCGUUAGGC CGAA AGGAGUUU	7971
2541	AACUCCUU C UUUUCCUG	572	CAGGAAAA CUGAUGAG GCCGUUAGGC CGAA AAGGAGUU	7972
2543	CUCCUUCU U UUCCUGAC	573	GUCAGGAA CUGAUGAG GCCGUUAGGC CGAA AGAAGGAG	7973
2544	UCCUUCUU U UCCUGACA	574	UGUCAGGA CUGAUGAG GCCGUUAGGC CGAA AAGAAGGA	7974
2545	CCUUCUUU U CCUGACAU	575	AUGUCAGG CUGAUGAG GCCGUUAGGC CGAA AAAGAAGG	7975
2546	CUUCUUUU C CUGACAUU	576	AAUGUCAG CUGAUGAG GCCGUUAGGC CGAA AAAAGAAG	7976
2554	CCUGACAU U CAUUUGCA	577	UGCAAAUG CUGAUGAG GCCGUUAGGC CGAA AUGUCAGG	7977
2555	CUGACAUU C AUUUGCAG	578	CUGCAAAU CUGAUGAG GCCGUUAGGC CGAA AAUGUCAG	7978
2558	ACAUUCAU U UGCAGGAG	579	CUCCUGCA CUGAUGAG GCCGUUAGGC CGAA AUGAAUGU	7979
2559	CAUUCAUU U GCAGGAGG	580	CCUCCUGC CUGAUGAG GCCGUUAGGC CGAA AAUGAAUG	7980
2572	GAGGACAU U GUUGAUAG	581	CUAUCAAC CUGAUGAG GCCGUUAGGC CGAA AUGUCCUC	7981
2575	GACAUUGU U GAUAGAUG	582	CAUCUAUC CUGAUGAG GCCGUUAGGC CGAA ACAAUGUC	7982
2579	UUGUUGAU A GAUGUAAG	583	CUUACAUC CUGAUGAG GCCGUUAGGC CGAA AUCAACAA	7983
2585	AUAGAUGU A AGCAAUUU	584	AAAUUGCU CUGAUGAG GCCGUUAGGC CGAA ACAUCUAU	7984
2592	UAAGCAAU U UGUGGGGC	585	GCCCCACA CUGAUGAG GCCGUUAGGC CGAA AUUGCUUA	7985
2593	AAGCAAUU U GUGGGGCC	586	GGCCCCAC CUGAUGAG GCCGUUAGGC CGAA AAUUGCUU	7986
2605	GGGCCCCU U ACAGUAAA	587	UUUACUGU CUGAUGAG GCCGUUAGGC CGAA AGGGGCCC	7987
2606	GGCCCCUU A CAGUAAAU	588	AUUUACUG CUGAUGAG GCCGUUAGGC CGAA AAGGGGCC	7988
2611	CUUACAGU A AAUGAAAA	589	UUUUCAUU CUGAUGAG GCCGUUAGGC CGAA ACUGUAAG	7989
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2629	AGGAGACU U AAAUUAAC	590	GUUAAUUU CUGAUGAG GCCGUUAGGC CGAA AGUCUCCU	7990
2630	GGAGACUU A AAUUAACU	591	AGUUAAUU CUGAUGAG GCCGUUAGGC CGAA AAGUCUCC	7991
2634	ACUUAAAU U AACUAUGC	592	GCAUAGUU CUGAUGAG GCCGUUAGGC CGAA AUUUAAGU	7992
2635	CUUAAAUU A ACUAUGCC	593	GGCAUAGU CUGAUGAG GCCGUUAGGC CGAA AAUUUAAG	7993
2639	AAUUAACU A UGCCUGCU	594	AGCAGGCA CUGAUGAG GCCGUUAGGC CGAA AGUUAAUU	7994
2648	UGCCUGCU A GGUUUUAU	595	AUAAAACC CUGAUGAG GCCGUUAGGC CGAA AGCAGGCA	7995
2652	UGCUAGGU U UUAUCCCA	596	UGGGAUAA CUGAUGAG GCCGUUAGGC CGAA ACCUAGCA	7996
2653	GCUAGGUU U UAUCCCAA	597	UUGGGAUA CUGAUGAG GCCGUUAGGC CGAA AACCUAGC	7997
2654	CUAGGUUU U AUCCCAAU	598	AUUGGGAU CUGAUGAG GCCGUUAGGC CGAA AAACCUAG	7998
2655	UAGGUUUU A UCCCAAUG	599	CAUUGGGA CUGAUGAG GCCGUUAGGC CGAA AAAACCUA	7999
2657	GGUUUUAU C CCAAUGUU	600	AACAUUGG CUGAUGAG GCCGUUAGGC CGAA AUAAAACC	8000
2665	CCCAAUGU U ACUAAAUA	601	UAUUUAGU CUGAUGAG GCCGUUAGGC CGAA ACAUUGGG	8001
2666	CCAAUGUU A CUAAAUAU	602	AUAUUUAG CUGAUGAG GCCGUUAGGC CGAA AACAUUGG	8002
2669	AUGUUACU A AAUAUUUG	603	CAAAUAUU CUGAUGAG GCCGUUAGGC CGAA AGUAACAU	8003
2673	UACUAAAU A UUUGCCCU	604	AGGGCAAA CUGAUGAG GCCGUUAGGC CGAA AUUUAGUA	8004
2675	CUAAAUAU U UGCCCUUA	605	UAAGGGCA CUGAUGAG GCCGUUAGGC CGAA AUAUUUAG	8005
2676	UAAAUAUU U GCCCUUAG	606	CUAAGGGC CUGAUGAG GCCGUUAGGC CGAA AAUAUUUA	8006
2682	UUUGCCCU U AGAUAAAG	607	CUUUAUCU CUGAUGAG GCCGUUAGGC CGAA AGGGCAAA	8007
2683	UUGCCCUU A GAUAAAGG	608	CCUUUAUC CUGAUGAG GCCGUUAGGC CGAA AAGGGCAA	8008
2687	CCUUAGAU A AAGGGAUC	609	GAUCCCUU CUGAUGAG GCCGUUAGGC CGAA AUCUAAGG	8009
2695	AAAGGGAU C AAACCGUA	610	UACGGUUU CUGAUGAG GCCGUUAGGC CGAA AUCCCUUU	8010
2703	CAAACCGU A UUAUCCAG	611	CUGGAUAA CUGAUGAG GCCGUUAGGC CGAA ACGGUUUG	8011
2705	AACCGUAU U AUCCAGAG	612	CUCUGGAU CUGAUGAG GCCGUUAGGC CGAA AUACGGUU	8012
2706	ACCGUAUU A UCCAGAGU	613	ACUCUGGA CUGAUGAG GCCGUUAGGC CGAA AAUACGGU	8013
2708	CGUAUUAU C CAGAGUAU	614	AUACUCUG CUGAUGAG GCCGUUAGGC CGAA AUAAUACG	8014
2715	UCCAGAGU A UGUAGUUA	615	UAACUACA CUGAUGAG GCCGUUAGGC CGAA ACUCUGGA	8015
2719	GAGUAUGU A GUUAAUCA	616	UGAUUAAC CUGAUGAG GCCGUUAGGC CGAA ACAUACUC	8016
2722	UAUGUAGU U AAUCAUUA	617	UAAUGAUU CUGAUGAG GCCGUUAGGC CGAA ACUACAUA	8017
2723	AUGUAGUU A AUCAUUAC	618	GUAAUGAU CUGAUGAG GCCGUUAGGC CGAA AACUACAU	8018
2726	UAGUUAAU C AUUACUUC	619	GAAGUAAU CUGAUGAG GCCGUUAGGC CGAA AUUAACUA	8019
2729	UUAAUCAU U ACUUCCAG	620	CUGGAAGU CUGAUGAG GCCGUUAGGC CGAA AUGAUUAA	8020
2730	UAAUCAUU A CUUCCAGA	621	UCUGGAAG CUGAUGAG GCCGUUAGGC CGAA AAUGAUUA	8021
2733	UCAUUACU U CCAGACGC	622	GCGUCUGG CUGAUGAG GCCGUUAGGC CGAA AGUAAUGA	8022
2734	CAUUACUU C CAGACGCG	623	CGCGUCUG CUGAUGAG GCCGUUAGGC CGAA AAGUAAUG	8023
2747	CGCGACAU U AUUUACAC	624	GUGUAAAU CUGAUGAG GCCGUUAGGC CGAA AUGUCGCG	8024
2748	GCGACAUU A UUUACACA	625	UGUGUAAA CUGAUGAG GCCGUUAGGC CGAA AAUGUCGC	8025
2750	GACAUUAU U UACACACU	626	AGUGUGUA CUGAUGAG GCCGUUAGGC CGAA AUAAUGUC	8026
2751	ACAUUAUU U ACACACUC	627	GAGUGUGU CUGAUGAG GCCGUUAGGC CGAA AAUAAUGU	8027
2752	CAUUAUUU A CACACUCU	628	AGAGUGUG CUGAUGAG GCCGUUAGGC CGAA AAAUAAUG	8028
2759	UACACACU C UUUGGAAG	629	CUUCCAAA CUGAUGAG GCCGUUAGGC CGAA AGUGUGUA	8029
2761	CACACUCU U UGGAAGGC	630	GCCUUCCA CUGAUGAG GCCGUUAGGC CGAA AGAGUGUG	8030
2762	ACACUCUU U GGAAGGCG	631	CGCCUUCC CUGAUGAG GCCGUUAGGC CGAA AAGAGUGU	8031
2776	GCGGGGAU C UUAUAUAA	632	UUAUAUAA CUGAUGAG GCCGUUAGGC CGAA AUCCCCGC	8032
2778	GGGGAUCU U AUAUAAAA	633	UUUUAUAU CUGAUGAG GCCGUUAGGC CGAA AGAUCCCC	8033
2779	GGGAUCUU A UAUAAAAG	634	CUUUUAUA CUGAUGAG GCCGUUAGGC CGAA AAGAUCCC	8034
2781	GAUCUUAU A UAAAAGAG	635	CUCUUUUA CUGAUGAG GCCGUUAGGC CGAA AUAAGAUC	8035
2783	UCUUAUAU A AAAGAGAG	636	CUCUCUUU CUGAUGAG GCCGUUAGGC CGAA AUAUAAGA	8036
2793	AAGAGAGU C CACACGUA	637	UACGUGUG CUGAUGAG GCCGUUAGGC CGAA ACUCUCUU	8037
2801	CCACACGU A GCGCCUCA	638	UGAGGCGC CUGAUGAG GCCGUUAGGC CGAA ACGUGUGG	8038
2808	UAGCGCCU C AUUUUGCG	639	CGCAAAAU CUGAUGAG GCCGUUAGGC CGAA AGGCGCUA	8039
2811	CGCCUCAU U UUGCGGGU	640	ACCCGCAA CUGAUGAG GCCGUUAGGC CGAA AUGAGGCG	8040
		0 10		120±0

2812	GCCUCAUU U UGCGGGUC	641	GACCCGCA CUGAUGAG GCCGUUAGGC CGAA AAUGAGGC	8041
2813	CCUCAUUU U GCGGGUCA	642	UGACCCGC CUGAUGAG GCCGUUAGGC CGAA AAAUGAGG	8042
2820	UUGCGGGU C ACCAUAUU	643	AAUAUGGU CUGAUGAG GCCGUUAGGC CGAA ACCCGCAA	8043
2826	GUCACCAU A UUCUUGGG	644	CCCAAGAA CUGAUGAG GCCGUUAGGC CGAA AUGGUGAC	8044
2828	CACCAUAU U CUUGGGAA	645	UUCCCAAG CUGAUGAG GCCGUUAGGC CGAA AUAUGGUG	8045
2829	ACCAUAUU C UUGGGAAC	646	GUUCCCAA CUGAUGAG GCCGUUAGGC CGAA AAUAUGGU	8046
2831	CAUAUUCU U GGGAACAA	647	UUGUUCCC CUGAUGAG GCCGUUAGGC CGAA AGAAUAUG	8047
2843	AACAAGAU C UACAGCAU	648	AUGCUGUA CUGAUGAG GCCGUUAGGC CGAA AUCUUGUU	8048
2845	CAAGAUCU A CAGCAUGG	649	CCAUGCUG CUGAUGAG GCCGUUAGGC CGAA AGAUCUUG	8049
2859	UGGGAGGU U GGUCUUCC	650	GGAAGACC CUGAUGAG GCCGUUAGGC CGAA ACCUCCCA	8050
2863	AGGUUGGU C UUCCAAAC	651	GUUUGGAA CUGAUGAG GCCGUUAGGC CGAA ACCAACCU	8051
2865	GUUGGUCU U CCAAACCU	652	AGGUUUGG CUGAUGAG GCCGUUAGGC CGAA AGACCAAC	8052
2866	UUGGUCUU C CAAACCUC	653	GAGGUUUG CUGAUGAG GCCGUUAGGC CGAA AAGACCAA	8053
2874	CCAAACCU C GAAAAGGC	654	GCCUUUUC CUGAUGAG GCCGUUAGGC CGAA AGGUUUGG	8054
2895	GGACAAAU C UUUCUGUC	655	GACAGAAA CUGAUGAG GCCGUUAGGC CGAA AUUUGUCC	8055
2897	ACAAAUCU U UCUGUCCC	656	GGGACAGA CUGAUGAG GCCGUUAGGC CGAA AGAUUUGU	8056
2898	CAAAUCUU U CUGUCCCC	657	GGGGACAG CUGAUGAG GCCGUUAGGC CGAA AAGAUUUG	8057
2899	AAAUCUUU C UGUCCCCA	658	UGGGGACA CUGAUGAG GCCGUUAGGC CGAA AAAGAUUU	8058
2903	CUUUCUGU C CCCAAUCC	659	GGAUUGGG CUGAUGAG GCCGUUAGGC CGAA ACAGAAAG	8059
2910	UCCCCAAU C CCCUGGGA	660	UCCCAGGG CUGAUGAG GCCGUUAGGC CGAA AUUGGGGA	8060
2920	CCUGGGAU U CUUCCCCG	661	CGGGGAAG CUGAUGAG GCCGUUAGGC CGAA AUCCCAGG	8061
2921	CUGGGAUU C UUCCCCGA	662	UCGGGGAA CUGAUGAG GCCGUUAGGC CGAA AAUCCCAG	8062
2923	GGGAUUCU U CCCCGAUC	663	GAUCGGGG CUGAUGAG GCCGUUAGGC CGAA AGAAUCCC	8063
2924	GGAUUCUU C CCCGAUCA	664	UGAUCGGG CUGAUGAG GCCGUUAGGC CGAA AAGAAUCC	8064
2931	UCCCCGAU C AUCAGUUG	665	CAACUGAU CUGAUGAG GCCGUUAGGC CGAA AUCGGGGA	8065
2934	CCGAUCAU C AGUUGGAC	666	GUCCAACU CUGAUGAG GCCGUUAGGC CGAA AUGAUCGG	8066
2938	UCAUCAGU U GGACCCUG	667	CAGGGUCC CUGAUGAG GCCGUUAGGC CGAA ACUGAUGA	8067
2950	CCCUGCAU U CAAAGCCA	668	UGGCUUUG CUGAUGAG GCCGUUAGGC CGAA AUGCAGGG	8068
2951	CCUGCAUU C AAAGCCAA	669	UUGGCUUU CUGAUGAG GCCGUUAGGC CGAA AAUGCAGG	8069
2962	AGCCAACU C AGUAAAUC	670	GAUUUACU CUGAUGAG GCCGUUAGGC CGAA AGUUGGCU	8070
2966	AACUCAGU A AAUCCAGA	671	UCUGGAUU CUGAUGAG GCCGUUAGGC CGAA ACUGAGUU	8071
2970	CAGUAAAU C CAGAUUGG	672	CCAAUCUG CUGAUGAG GCCGUUAGGC CGAA AUUUACUG	8072
2976	AUCCAGAU U GGGACCUC	673	GAGGUCCC CUGAUGAG GCCGUUAGGC CGAA AUCUGGAU	8073
2984	UGGGACCU C AACCCGCA	674	UGCGGGUU CUGAUGAG GCCGUUAGGC CGAA AGGUCCCA	8074
3037	GGGAGCAU U CGGGCCAG	675	CUGGCCCG CUGAUGAG GCCGUUAGGC CGAA AUGCUCCC	8075
3038	GGAGCAUU C GGGCCAGG	676	CCUGGCCC CUGAUGAG GCCGUUAGGC CGAA AAUGCUCC	8076
3049	GCCAGGGU U CACCCCUC	677	GAGGGGUG CUGAUGAG GCCGUUAGGC CGAA ACCCUGGC	8077
3050	CCAGGGUU C ACCCCUCC	678	GGAGGGGU CUGAUGAG GCCGUUAGGC CGAA AACCCUGG	8078
3057	UCACCCCU C CCCAUGGG	679	CCCAUGGG CUGAUGAG GCCGUUAGGC CGAA AGGGGUGA	8079
3073	GGGACUGU U GGGGUGGA	680	UCCACCCC CUGAUGAG GCCGUUAGGC CGAA ACAGUCCC	8080
3087	GGAGCCCU C ACGCUCAG	681	CUGAGCGU CUGAUGAG GCCGUUAGGC CGAA AGGGCUCC	8081
3093	CUCACGCU C AGGGCCUA	682	UAGGCCCU CUGAUGAG GCCGUUAGGC CGAA AGCGUGAG	8082
3101	CAGGGCCU A CUCACAAC	683	GUUGUGAG CUGAUGAG GCCGUUAGGC CGAA AGGCCCUG	8083
3104	GGCCUACU C ACAACUGU	684	ACAGUUGU CUGAUGAG GCCGUUAGGC CGAA AGUAGGCC	8084
3123	CAGCAGCU C CUCCUCCU	685	AGGAGGAG CUGAUGAG GCCGUUAGGC CGAA AGCUGCUG	8085
3126	CAGCUCCU C CUCCUGCC	686	GGCAGGAG CUGAUGAG GCCGUUAGGC CGAA AGGAGCUG	8086
3129	cuccuccu c cugccucc	687	GGAGGCAG CUGAUGAG GCCGUUAGGC CGAA AGGAGGAG	8087
3136	UCCUGCCU C CACCAAUC	688	GAUUGGUG CUGAUGAG GCCGUUAGGC CGAA AGGCAGGA	8088
3144	CCACCAAU C GGCAGUCA	689	UGACUGCC CUGAUGAG GCCGUUAGGC CGAA AUUGGUGG	8089
3151	UCGGCAGU C AGGAAGGC	690_	GCCUUCCU CUGAUGAG GCCGUUAGGC CGAA ACUGCCGA	8090
3165	GGCAGCCU A CUCCCUUA	691	UAAGGGAG CUGAUGAG GCCGUUAGGC CGAA AGGCUGCC	8091

3168	AGCCUACU C CCUUAUCU	692	AGAUAAGG CUGAUGAG GCCGUUAGGC CGAA AGUAGGCU	8092
3172	UACUCCCU U AUCUCCAC	693	GUGGAGAU CUGAUGAG GCCGUUAGGC CGAA AGGGAGUA	8093
3173	ACUCCCUU A UCUCCACC	694	GGUGGAGA CUGAUGAG GCCGUUAGGC CGAA AAGGGAGU	8094
3175	UCCCUUAU C UCCACCUC	695	GAGGUGGA CUGAUGAG GCCGUUAGGC CGAA AUAAGGGA	8095
3177	CCUUAUCU C CACCUCUA	696	UAGAGGUG CUGAUGAG GCCGUUAGGC CGAA AGAUAAGG	8096
3183	CUCCACCU C UAAGGGAC	697	GUCCCUUA CUGAUGAG GCCGUUAGGC CGAA AGGUGGAG	8097
3185	CCACCUCU A AGGGACAC	698	GUGUCCCU CUGAUGAG GCCGUUAGGC CGAA AGAGGUGG	8098
3195	GGGACACU C AUCCUCAG	699	CUGAGGAU CUGAUGAG GCCGUUAGGC CGAA AGUGUCCC	8099
3198	ACACUCAU C CUCAGGCC	700	GGCCUGAG CUGAUGAG GCCGUUAGGC CGAA AUGAGUGU	8100
3201	CUCAUCCU C AGGCCAUG	701	CAUGGCCU CUGAUGAG GCCGUUAGGC CGAA AGGAUGAG	8101

Input Sequence = AF100308. Cut Site = UH/.
Stem Length = 8 . Core Sequence = CUGAUGAG GCCGUUAGGC CGAA
AF100308 (Hepatitis B virus strain 2-18, 3215 bp)

Underlined region can be any X sequence or linker, as described herein.

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TABLE VI: HUMAN HBV INOZYME AND SUBSTRATE SEQUENCE

Pos	Substrate	Seq ID	Inozyme	Seq
9	AACUCCAC C ACUUUCCA	702	UGGAAAGU CUGAUGAG GCCGUUAGGC CGAA IUGGAGUU	ID
10	ACUCCACC A CUUUCCAC	702 703	GUGGAAAG CUGAUGAG GCCGUUAGGC CGAA IUGGAGUU	8102
12	UCCACCAC U UUCCACCA	704	UGGUGGAA CUGAUGAG GCCGUUAGGC CGAA IUGGUGGA	8103
16	CCACUUUC C ACCAAACU	704	AGUUUGGU CUGAUGAG GCCGUUAGGC CGAA IAAAGUGG	8104
17	CACUUUCC A CCAAACUC	706	GAGUUUGG CUGAUGAG GCCGUUAGGC CGAA IGAAAGUG	8105 8106
19	CUUUCCAC C AAACUCUU	707	AAGAGUUU CUGAUGAG GCCGUUAGGC CGAA IUGGAAAG	8107
20	UUUCCACC A AACUCUUC	708	GAAGAGUU CUGAUGAG GCCGUUAGGC CGAA IGUGGAAA	8108
24	CACCAAAC U CUUCAAGA	709	UCUUGAAG CUGAUGAG GCCGUUAGGC CGAA IUUUGGUG	8109
26	CCAAACUC U UCAAGAUC	710	GAUCUUGA CUGAUGAG GCCGUUAGGC CGAA IAGUUUGG	8110
29	AACUCUUC A AGAUCCCA	711	UGGGAUCU CUGAUGAG GCCGUUAGGC CGAA IAAGAGUU	8111
35	UCAAGAUC C CAGAGUCA	712	UGACUCUG CUGAUGAG GCCGUUAGGC CGAA IAUCUUGA	8112
36	CAAGAUCC C AGAGUCAG	713	CUGACUCU CUGAUGAG GCCGUUAGGC CGAA IGAUCUUG	8113
37	AAGAUCCC A GAGUCAGG	714	CCUGACUC CUGAUGAG GCCGUUAGGC CGAA IGGAUCUU	8114
43	CCAGAGUC A GGGCCCUG	715	CAGGGCCC CUGAUGAG GCCGUUAGGC CGAA IACUCUGG	8115
48	GUCAGGGC C CUGUACUU	716	AAGUACAG CUGAUGAG GCCGUUAGGC CGAA ICCCUGAC	8116
49	UCAGGGCC C UGUACUUU	717	AAAGUACA CUGAUGAG GCCGUUAGGC CGAA IGCCCUGA	8117
50	CAGGGCCC U GUACUUUC	718	GAAAGUAC CUGAUGAG GCCGUUAGGC CGAA IGGCCCUG	8118
55	CCCUGUAC U UUCCUGCU	719	AGCAGGAA CUGAUGAG GCCGUUAGGC CGAA IUACAGGG	8119
59	GUACUUUC C UGCUGGUG	720	CACCAGCA CUGAUGAG GCCGUUAGGC CGAA IAAAGUAC	8120
60	UACUUUCC U GCUGGUGG	721	CCACCAGC CUGAUGAG GCCGUUAGGC CGAA IGAAAGUA	8121
63	UUUCCUGC U GGUGGCUC	722	GAGCCACC CUGAUGAG GCCGUUAGGC CGAA ICAGGAAA	8122
70	CUGGUGGC U CCAGUUCA	723	UGAACUGG CUGAUGAG GCCGUUAGGC CGAA ICCACCAG	8123
72	GGUGGCUC C AGUUCAGG	724	CCUGAACU CUGAUGAG GCCGUUAGGC CGAA IAGCCACC	8124
73	GUGGCUCC A GUUCAGGA	725	UCCUGAAC CUGAUGAG GCCGUUAGGC CGAA IGAGCCAC	8125
78	UCCAGUUC A GGAACAGU	726	ACUGUUCC CUGAUGAG GCCGUUAGGC CGAA IAACUGGA	8126
84	UCAGGAAC A GUGAGCCC	727	GGGCUCAC CUGAUGAG GCCGUUAGGC CGAA IUUCCUGA	8127
91	CAGUGAGC C CUGCUCAG	728	CUGAGCAG CUGAUGAG GCCGUUAGGC CGAA ICUCACUG	8128
92	AGUGAGCC C UGCUCAGA	729	UCUGAGCA CUGAUGAG GCCGUUAGGC CGAA IGCUCACU	8129
93	GUGAGCCC U GCUCAGAA	730	UUCUGAGC CUGAUGAG GCCGUUAGGC CGAA IGGCUCAC	8130
96	AGCCCUGC U CAGAAUAC	731	GUAUUCUG CUGAUGAG GCCGUUAGGC CGAA ICAGGGCU	8131
. 98	CCCUGCUC A GAAUACUG	732	CAGUAUUC CUGAUGAG GCCGUUAGGC CGAA IAGCAGGG	8132
105	CAGAAUAC U GUCUCUGC	733	GCAGAGAC CUGAUGAG GCCGUUAGGC CGAA IUAUUCUG	8133
109	AUACUGUC U CUGCCAUA	734	UAUGGCAG CUGAUGAG GCCGUUAGGC CGAA IACAGUAU	8134
111	ACUGUCUC U GCCAUAUC	735	GAUAUGGC CUGAUGAG GCCGUUAGGC CGAA IAGACAGU	8135
114	GUCUCUGC C AUAUCGUC	736	GACGAUAU CUGAUGAG GCCGUUAGGC CGAA ICAGAGAC	8136
115	UCUCUGCC A UAUCGUCA	737	UGACGAUA CUGAUGAG GCCGUUAGGC CGAA IGCAGAGA	8137
123	AUAUCGUC A AUCUUAUC	738	GAUAAGAU CUGAUGAG GCCGUUAGGC CGAA IACGAUAU	8138
127	CGUCAAUC U UAUCGAAG	739	CUUCGAUA CUGAUGAG GCCGUUAGGC CGAA IAUUGACG	8139
138	UCGAAGAC U GGGGACCC	740	GGGUCCCC CUGAUGAG GCCGUUAGGC CGAA IUCUUCGA	8140
145	CUGGGGAC C CUGUACCG	741	CGGUACAG CUGAUGAG GCCGUUAGGC CGAA IUCCCCAG	8141
146	UGGGGACC C UGUACCGA	742	UCGGUACA CUGAUGAG GCCGUUAGGC CGAA IGUCCCCA	8142
147	GGGGACCC U GUACCGAA	743	UUCGGUAC CUGAUGAG GCCGUUAGGC CGAA IGGUCCCC	8143
152	CCCUGUAC C GAACAUGG	744	CCAUGUUC CUGAUGAG GCCGUUAGGC CGAA IUACAGGG	8144
157	UACCGAAC A UGGAGAAC	745	GUUCUCCA CUGAUGAG GCCGUUAGGC CGAA IUUCGGUA	8145
166	UGGAGAAC A UCGCAUCA	746	UGAUGCGA CUGAUGAG GCCGUUAGGC CGAA IUUCUCCA	8146
171	AACAUCGC A UCAGGACU	747	AGUCCUGA CUGAUGAG GCCGUUAGGC CGAA ICGAUGUU	8147

174	AUCGCAUC A GGACUCCU	740	AGGAGUCC CUGAUGAG GCCGUUAGGC CGAA IAUGCGAU	
179	AUCAGGAC U CCUAGGAC	748	GUCCUAGG CUGAUGAG GCCGUUAGGC CGAA IUCCUGAU	8148
181	CAGGACUC C UAGGACCC	749	GGGUCCUA CUGAUGAG GCCGUUAGGC CGAA IAGUCCUG	8149
182	AGGACUCC U AGGACCCC	750	GGGGUCCU CUGAUGAG GCCGUUAGGC CGAA IGAGUCCU	8150
188	CCUAGGAC C CCUGCUCG	751	CGAGCAGG CUGAUGAG GCCGUUAGGC CGAA IUCCUAGG	8151
	CUAGGACC C CUGCUCGU	752		8152
189		753	ACGAGCAG CUGAUGAG GCCGUUAGGC CGAA IGUCCUAG	8153
190	UAGGACCC C UGCUCGUG	754	CACGAGCA CUGAUGAG GCCGUUAGGC CGAA IGGUCCUA	8154
191	AGGACCCC U GCUCGUGU	755	ACACGAGC CUGAUGAG GCCGUUAGGC CGAA IGGGUCCU	8155
194	ACCCCUGC U CGUGUUAC	756	GUAACACG CUGAUGAG GCCGUUAGGC CGAA ICAGGGGU	8156
203	CGUGUUAC A GGCGGGGU	757	ACCCCGCC CUGAUGAG GCCGUUAGGC CGAA IUAACACG	8157
217	GGUUUUUC U UGUUGACA	758	UGUCAACA CUGAUGAG GCCGUUAGGC CGAA IAAAAACC	8158
225	UUGUUGAC A AAAAUCCU	759	AGGAUUUU CUGAUGAG GCCGUUAGGC CGAA IUCAACAA	8159
232	CAAAAAUC C UCACAAUA	760	UAUUGUGA CUGAUGAG GCCGUUAGGC CGAA IAUUUUUG	8160
233	AAAAAUCC U CACAAUAC	761	GUAUUGUG CUGAUGAG GCCGUUAGGC CGAA IGAUUUUU	8161
235	AAAUCCUC A CAAUACCA	762	UGGUAUUG CUGAUGAG GCCGUUAGGC CGAA IAGGAUUU	8162
237	AUCCUCAC A AUACCACA	763	UGUGGUAU CUGAUGAG GCCGUUAGGC CGAA IUGAGGAU	8163
242	CACAAUAC C ACAGAGUC	764	GACUCUGU CUGAUGAG GCCGUUAGGC CGAA IUAUUGUG	8164
243	ACAAUACC A CAGAGUCU	765	AGACUCUG CUGAUGAG GCCGUUAGGC CGAA IGUAUUGU	8165
245	AAUACCAC A GAGUCUAG	766	CUAGACUC CUGAUGAG GCCGUUAGGC CGAA IUGGUAUU	8166
251	ACAGAGUC U AGACUCGU	767	ACGAGUCU CUGAUGAG GCCGUUAGGC CGAA IACUCUGU	8167
256	GUCUAGAC U CGUGGUGG	768	CCACCACG CUGAUGAG GCCGUUAGGC CGAA IUCUAGAC	8168
267	UGGUGGAC U UCUCUCAA	769	UUGAGAGA CUGAUGAG GCCGUUAGGC CGAA IUCCACCA	8169
270	UGGACUUC U CUCAAUUU	770	AAAUUGAG CUGAUGAG GCCGUUAGGC CGAA IAAGUCCA	8170
272	GACUUCUC U CAAUUUUC	771	GAAAAUUG CUGAUGAG GCCGUUAGGC CGAA IAGAAGUC	8171
274	CUUCUCUC A AUUUUCUA	772	UAGAAAAU CUGAUGAG GCCGUUAGGC CGAA IAGAGAAG	8172
281	CAAUUUUC U AGGGGGAA	773	UUCCCCCU CUGAUGAG GCCGUUAGGC CGAA IAAAAUUG	8173
291	GGGGGAAC A CCCGUGUG	774	CACACGGG CUGAUGAG GCCGUUAGGC CGAA IUUCCCCC	8174
293	GGGAACAC C CGUGUGUC	775	GACACACG CUGAUGAG GCCGUUAGGC CGAA IUGUUCCC	8175
294	GGAACACC C GUGUGUCU	776	AGACACAC CUGAUGAG GCCGUUAGGC CGAA IGUGUUCC	8176
302	CGUGUGUC U UGGCCAAA	777	UUUGGCCA CUGAUGAG GCCGUUAGGC CGAA IACACACG	8177
307	GUCUUGGC C AAAAUUCG	778	CGAAUUUU CUGAUGAG GCCGUUAGGC CGAA ICCAAGAC	8178
308	UCUUGGCC A AAAUUCGC	779	GCGAAUUU CUGAUGAG GCCGUUAGGC CGAA IGCCAAGA	8179
317	AAAUUCGC A GUCCCAAA	780	UUUGGGAC CUGAUGAG GCCGUUAGGC CGAA ICGAAUUU	8180
321	UCGCAGUC C CAAAUCUC	781	GAGAUUUG CUGAUGAG GCCGUUAGGC CGAA IACUGCGA	8181
322	CGCAGUCC C AAAUCUCC	782	GGAGAUUU CUGAUGAG GCCGUUAGGC CGAA IGACUGCG	8182
323	GCAGUCCC A AAUCUCCA	783	UGGAGAUU CUGAUGAG GCCGUUAGGC CGAA IGGACUGC	8183
328	CCCAAAUC U CCAGUCAC	784	GUGACUGG CUGAUGAG GCCGUUAGGC CGAA IAUUUGGG	8184
330	CAAAUCUC C AGUCACUC	785	GAGUGACU CUGAUGAG GCCGUUAGGC CGAA IAGAUUUG	8185
331	AAAUCUCC A GUCACUCA	786	UGAGUGAC CUGAUGAG GCCGUUAGGC CGAA IGAGAUUU	8186
335	CUCCAGUC A CUCACCAA	787	UUGGUGAG CUGAUGAG GCCGUUAGGC CGAA IACUGGAG	8187
337	CCAGUCAC U CACCAACC	788	GGUUGGUG CUGAUGAG GCCGUUAGGC CGAA IUGACUGG	
339	AGUCACUC A CCAACCUG	789	CAGGUUGG CUGAUGAG GCCGUUAGGC CGAA IAGUGACU	8188
341	UCACUCAC C AACCUGUU	790	AACAGGUU CUGAUGAG GCCGUUAGGC CGAA IUGAGUGA	8189
342	CACUCACC A ACCUGUUG	791	CAACAGGU CUGAUGAG GCCGUUAGGC CGAA IGUGAGUG	8190
345	UCACCAAC C UGUUGUCC	791	GGACAACA CUGAUGAG GCCGUUAGGC CGAA IUUGGUGA	8191
346	CACCAACC U GUUGUCCU		AGGACAAC CUGAUGAG GCCGUUAGGC CGAA IGUUGGUG	8192
353	CUGUUGUC C UCCAAUUU	793	AAAUUGGA CUGAUGAG GCCGUUAGGC CGAA IACAACAG	8193
354	UGUUGUCC U CCAAUUUG	794	CAAAUUGG CUGAUGAG GCCGUUAGGC CGAA IACAACAG	8194
356	UUGUCCUC C AAUUUGUC	795	GACAAAUU CUGAUGAG GCCGUUAGGC CGAA IAGGACAA	8195
357	UGUCCUCC A AUUUGUCC	796	GACAAAU CUGAUGAG GCCGUUAGGC CGAA IAGGACAA GGACAAAU CUGAUGAG GCCGUUAGGC CGAA IGAGGACA	8196
365	AAUUUGUC C UGGUUAUC	797		8197
	TELOUGUE C UGGUUAUC	798	GAUAACCA CUGAUGAG GCCGUUAGGC CGAA IACAAAUU	8198

7.66	AUUUGUCC U GGUUAUCG	700	CGAUAACC CUGAUGAG GCCGUUAGGC CGAA IGACAAAU	
366		799		8199
376	GUUAUCGC U GGAUGUGU	800	ACACAUCC CUGAUGAG GCCGUUAGGC CGAA ICGAUAAC	8200
386	GAUGUGUC U GCGGCGUU	801	AACGCCGC CUGAUGAG GCCGUUAGGC CGAA IACACAUC	8201
400	GUUUUAUC A UCUUCCUC	802	GAGGAAGA CUGAUGAG GCCGUUAGGC CGAA IAUAAAAC	8202
403	UUAUCAUC U UCCUCUGC	803	GCAGAGGA CUGAUGAG GCCGUUAGGC CGAA IAUGAUAA	8203
406	UCAUCUUC C UCUGCAUC	804	GAUGCAGA CUGAUGAG GCCGUUAGGC CGAA IAAGAUGA	8204
407	CAUCUUCC U CUGCAUCC	805	GGAUGCAG CUGAUGAG GCCGUUAGGC CGAA IGAAGAUG	8205
409	UCUUCCUC U GCAUCCUG	806	CAGGAUGC CUGAUGAG GCCGUUAGGC CGAA IAGGAAGA	8206
412	UCCUCUGC A UCCUGCUG	807	CAGCAGGA CUGAUGAG GCCGUUAGGC CGAA ICAGAGGA	8207
415	UCUGCAUC C UGCUGCUA	808	UAGCAGCA CUGAUGAG GCCGUUAGGC CGAA IAUGCAGA	8208
416	CUGCAUCC U GCUGCUAU	809	AUAGCAGC CUGAUGAG GCCGUUAGGC CGAA IGAUGCAG	8209
419	CAUCCUGC U GCUAUGCC	810	GGCAUAGC CUGAUGAG GCCGUUAGGC CGAA ICAGGAUG	8210.
422	CCUGCUGC U AUGCCUCA	811	UGAGGCAU CUGAUGAG GCCGUUAGGC CGAA ICAGCAGG	8211
427	UGCUAUGC C UCAUCUUC	812	GAAGAUGA CUGAUGAG GCCGUUAGGC CGAA ICAUAGCA	8212
428	GCUAUGCC U CAUCUUCU	813	AGAAGAUG CUGAUGAG GCCGUUAGGC CGAA IGCAUAGC	8213
430	UAUGCCUC A UCUUCUUG	814	CAAGAAGA CUGAUGAG GCCGUUAGGC CGAA IAGGCAUA	8214
433	GCCUCAUC U UCUUGUUG	815	CAACAAGA CUGAUGAG GCCGUUAGGC CGAA IAUGAGGC	8215
436	UCAUCUUC U UGUUGGUU	816	AACCAACA CUGAUGAG GCCGUUAGGC CGAA IAAGAUGA	8216
446	GUUGGUUC U UCUGGACU	817	AGUCCAGA CUGAUGAG GCCGUUAGGC CGAA IAACCAAC	8217
449	GGUUCUUC U GGACUAUC	818	GAUAGUCC CUGAUGAG GCCGUUAGGC CGAA IAAGAACC	8218
454	UUCUGGAC U AUCAAGGU	819	ACCUUGAU CUGAUGAG GCCGUUAGGC CGAA IUCCAGAA	8219
458	GGACUAUC A AGGUAUGU	820	ACAUACCU CUGAUGAG GCCGUUAGGC CGAA IAUAGUCC	8220
470	UAUGUUGC C CGUUUGUC	821	GACAAACG CUGAUGAG GCCGUUAGGC CGAA ICAACAUA	8221
471	AUGUUGCC C GUUUGUCC	822	GGACAAAC CUGAUGAG GCCGUUAGGC CGAA IGCAACAU	8222
479	CGUUUGUC C UCUAAUUC	823	GAAUUAGA CUGAUGAG GCCGUUAGGC CGAA IACAAACG	8223
480	GUUUGUCC U CUAAUUCC	824	GGAAUUAG CUGAUGAG GCCGUUAGGC CGAA IGACAAAC	8224
482	UUGUCCUC U AAUUCCAG	825	CUGGAAUU CUGAUGAG GCCGUUAGGC CGAA IAGGACAA	8225
488	UCUAAUUC C AGGAUCAU	826	AUGAUCCU CUGAUGAG GCCGUUAGGC CGAA IAAUUAGA	8226
489	CUAAUUCC A GGAUCAUC	827	GAUGAUCC CUGAUGAG GCCGUUAGGC CGAA IGAAUUAG	8227
495	CCAGGAUC A UCAACAAC	828	GUUGUUGA CUGAUGAG GCCGUUAGGC CGAA IAUCCUGG	8228
498	GGAUCAUC A ACAACCAG	829	CUGGUUGU CUGAUGAG GCCGUUAGGC CGAA IAUGAUCC	8229
501	UCAUCAAC A ACCAGCAC	830	GUGCUGGU CUGAUGAG GCCGUUAGGC CGAA IUUGAUGA	8230
504	UCAACAAC C AGCACCGG	831	CCGGUGCU CUGAUGAG GCCGUUAGGC CGAA IUUGUUGA	8231
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537	ACAACUCC U GCUCAAGG	844	CCUUGAGC CUGAUGAG GCCGUUAGGC CGAA IGAGUUGU	8244
540	ACUCCUGC U CAAGGAAC	845	GUUCCUUG CUGAUGAG GCCGUUAGGC CGAA ICAGGAGU	8245
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L				0247

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571	CAUGUUGC U GUACAAAA	854	UUUUGUAC CUGAUGAG GCCGUUAGGC CGAA ICAACAUG	8254
576	UGCUGUAC A AAACCUAC	855	GUAGGUUU CUGAUGAG GCCGUUAGGC CGAA IUACAGCA	8255
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582	ACAAAACC U ACGGACGG	857	CCGUCCGU CUGAUGAG GCCGUUAGGC CGAA IGUUUUGU	8257
595	ACGGAAAC U GCACCUGU	858	ACAGGUGC CUGAUGAG GCCGUUAGGC CGAA IUUUCCGU	8258
598	GAAACUGC A CCUGUAUU	859	AAUACAGG CUGAUGAG GCCGUUAGGC CGAA ICAGUUUC	8259
600	AACUGCAC C UGUAUUCC	860	GGAAUACA CUGAUGAG GCCGUUAGGC CGAA IUGCAGUU	+
601	ACUGCACC U GUAUUCCC	861	GGGAAUAC CUGAUGAG GCCGUUAGGC CGAA IGUGCAGU	8260
608	CUGUAUUC C CAUCCCAU	862	AUGGGAUG CUGAUGAG GCCGUUAGGC CGAA IAAUACAG	
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610	GUAUUCCC A UCCCAUCA		UGAUGGGA CUGAUGAG GCCGUUAGGC CGAA IGGAAUAC	8263
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614	UCCCAUCC C AUCAUCUU	865	AAGAUGAU CUGAUGAG GCCGUUAGGC CGAA IGAUGGGA	8265
615	CCCAUCCC A UCAUCUUG	866	CAAGAUGA CUGAUGAG GCCGUUAGGC CGAA IGGAUGGG	8266
618	AUCCCAUC A UCUUGGGC	867	GCCCAAGA CUGAUGAG GCCGUUAGGC CGAA IAUGGGAU	8267
621	CCAUCAUC U UGGGCUUU	868	AAAGCCCA CUGAUGAG GCCGUUAGGC CGAA IAUGAUGG	8268
627	UCUUGGGC U UUCGCAAA	869	UUUGCGAA CUGAUGAG GCCGUUAGGC CGAA ICCCAAGA	8269
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657	UGGGCCUC A GUCCGUUU	875	AAACGGAC CUGAUGAG GCCGUUAGGC CGAA IAGGCCCA	8275
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667	UCCGUUUC U CUUGGCUC	877	GAGCCAAG CUGAUGAG GCCGUUAGGC CGAA IAAACGGA	8277
669	CGUUUCUC U UGGCUCAG	878	CUGAGCCA CUGAUGAG GCCGUUAGGC CGAA IAGAAACG	8278
674	CUCUUGGC U CAGUUUAC	879	GUAAACUG CUGAUGAG GCCGUUAGGC CGAA ICCAAGAG	8279
676	CUUGGCUC A GUUUACUA	880	UAGUAAAC CUGAUGAG GCCGUUAGGC CGAA IACCCAAG	8280
683	CAGUUUAC U AGUGCCAU	881	AUGGCACU CUGAUGAG GCCGUUAGGC CGAA IUAAACUG	8281
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690	CUAGUGCC A UUUGUUCA	883	UGAACAAA CUGAUGAG GCCGUUAGGC CGAA ICACUAGG	8283
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713	CGUAGGGC U UUCCCCCA	885	UGGGGGAA CUGAUGAG GCCGUUAGGC CGAA ICCCUACG	8285
717	GGGCUUUC C CCCACUGU	886	ACAGUGGG CUGAUGAG GCCGUUAGGC CGAA IACAGCCC	8286
718	GGCUUUCC C CCACUGUC	887	GACAGUGG CUGAUGAG GCCGUUAGGC CGAA IAAAGCCC GACAGUGG CUGAUGAG GCCGUUAGGC CGAA IGAAAGCC	8287
719	GCUUUCCC C CACUGUCU	888	AGACAGUG CUGAUGAG GCCGUUAGGC CGAA IGGAAAGCC	8288
720	CUUUCCCC C ACUGUCUG	889	CAGACAGU CUGAUGAG GCCGUUAGGC CGAA IGGGAAAG	8289
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723	UCCCCCAC U GUCUGGCU	891	AGCCAGAC CUGAUGAG GCCGUUAGGC CGAA IUGGGGGA	8291
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731	UGUCUGGC U UUCAGUUA	893	UAACUGAA CUGAUGAG GCCGUUAGGC CGAA ICCAGACA	8293
735	UGGCUUUC A GUUAUAUG	894	CAUAUAAC CUGAUGAG GCCGUUAGGC CGAA IAAAGCCA	8294
764	UUGGGGGC C AAGUCUGU	895	ACAGACUU CUGAUGAG GCCGUUAGGC CGAA IACAGCCA	8295
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778	UGUACAAC A UCUUGAGU	899	ACUCAAGA CUGAUGAG GCCGUUAGGC CGAA IUUGUACA	8299
	COUNTY OCCORNO	900	THE THE PART CONTROL OF COMM TOUGHACA	8300

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781	ACAACAUC U UGAGUCCC	901	GGGACUCA CUGAUGAG GCCGUUAGGC CGAA TAGUGAGC	8301
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908	UGGGGCAC A UUGCCACA	924	UGUGGCAA CUGAUGAG GCCGUUAGGC CGAA IUGCCCCA	8324
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961	GAAACUUC C UGUAAACA	932	UGUUUACA CUGAUGAG GCCGUUAGGC CGAA IAAGUUUC	8332
962	AAACUUCC U GUAAACAG	933	CUGUUUAC CUGAUGAG GCCGUUAGGC CGAA IGAAGUUU	8333
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	HUSCAUGE A UACAAGCA	951	DOCUMENT CONTROL CONTR	8351

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1078	AUGCAUAC A AGCAAAAC	952	GUUUUGCU CUGAUGAG GCCGUUAGGC CGAA IUAUGCAU	8352
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1119	ACAAGGCC U UUCUAAGU	963	ACUUAGAA CUGAUGAG GCCGUUAGGC CGAA IGCCUUGU	8363
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1180	UCUAUGCC A AGUGUUUG	977	CAAACACU CUGAUGAG GCCGUUAGGC CGAA IGCAUAGA	8377
1190	GUGUUUGC U GACGCAAC	978	GUUGCGUC CUGAUGAG GCCGUUAGGC CGAA ICAAACAC	8378
1196	GCUGACGC A ACCCCCAC	979	GUGGGGGU CUGAUGAG GCCGUUAGGC CGAA ICGUCAGC	8379
1199	GACGCAAC C CCCACUGG	980	CCAGUGGG CUGAUGAG GCCGUUAGGC CGAA IUUGCGUC	8380
1200	ACGCAACC C CCACUGGU	981	ACCAGUGG CUGAUGAG GCCGUUAGGC CGAA IGUUGCGU	8381
1201	CGCAACCC C CACUGGUU	982	AACCAGUG CUGAUGAG GCCGUUAGGC CGAA IGGUUGCG	8382
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1203	CAACCCCC A CUGGUUGG	984	CCAACCAG CUGAUGAG GCCGUUAGGC CGAA IGGGGUUG	8384
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1231	AGGCCAUC A GCGCAUGC	991	GCAUGCGC CUGAUGAG GCCGUUAGGC CGAA IAUGGCCU	8391
1236	AUCAGCGC A UGCGUGGA	992	UCCACGCA CUGAUGAG GCCGUUAGGC CGAA ICGCUGAU	8392
1247	CGUGGAAC C UUUGUGUC	993	GACACAAA CUGAUGAG GCCGUUAGGC CGAA IUUCCACG	8393
1248	GUGGAACC U UUGUGUCU	994	AGACACAA CUGAUGAG GCCGUUAGGC CGAA IGUUCCAC	8394
1256	UUUGUGUC U CCUCUGCC	995	GGCAGAGG CUGAUGAG GCCGUUAGGC CGAA IACACAAA	8395
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1259	GUGUCUCC U CUGCCGAU	997	AUCGGCAG CUGAUGAG GCCGUUAGGC CGAA IGAGACAC	8397
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1264	UCCUCUGC C GAUCCAUA	999	UAUGGAUC CUGAUGAG GCCGUUAGGC CGAA ICAGAGGA	8399
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1274	AUCCAUAC C GCGGAACU	1002	AGUUCCGC CUGAUGAG GCCGUUAGGC CGAA IUAUGGAU	8402
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1282	CGCGGAAC U CCUAGCCG	1002	CGGCUAGG CUGAUGAG GCCGUUAGGC CGAA IUUCCGCG	0402
1284	CGGAACUC C UAGCCGCU	1003	AGCGGCUA CUGAUGAG GCCGUUAGGC CGAA IAGUUCCG	8403
1285	GGAACUCC U AGCCGCUU		AAGCGGCU CUGAUGAG GCCGUUAGGC CGAA IGAGUUCC	8404
1289	CUCCUAGC C GCUUGUUU	1005	AAACAAGC CUGAUGAG GCCGUUAGGC CGAA ICUAGGAG	8405
1292	CUAGCCGC U UGUUUUGC	1006	GCAAAACA CUGAUGAG GCCGUUAGGC CGAA ICGGCUAG	8406
1301	UGUUUUGC U CGCAGCAG	1007	CUGCUGCG CUGAUGAG GCCGUUAGGC CGAA ICAAAACA	8407
1305	UUGCUCGC A GCAGGUCU	1008	AGACCUGC CUGAUGAG GCCGUUAGGC CGAA ICGAGCAA	8408
1308	CUCGCAGC A GGUCUGGG	1009	CCCAGACC CUGAUGAG GCCGUUAGGC CGAA ICUGCGAG	8409
1313	AGCAGGUC U GGGGCAAA	1010	UUUGCCCC CUGAUGAG GCCGUUAGGC CGAA IACCUGCU	8410
1319	UCUGGGGC A AAACUCAU	1011	AUGAGUUU CUGAUGAG GCCGUUAGGC CGAA ICCCCAGA	8411
1324	GGCAAAAC U CAUCGGGA	1012	UCCCGAUG CUGAUGAG GCCGUUAGGC CGAA IUUUUGCC	8412
1326	CAAAACUC A UCGGGACU	1013	AGUCCCGA CUGAUGAG GCCGUUAGGC CGAA IAGUUUUG	8413
1334	AUCGGGAC U GACAAUUC	1014	GAAUUGUC CUGAUGAG GCCGUUAGGC CGAA IUCCCGAU	8414
1334	GGACUGAC A AUUCUGUC	1015	GACAGAAU CUGAUGAG GCCGUUAGGC CGAA IUCAGUCC	8415
1343	GACAAUUC U GUCGUGCU	1016	AGCACGAC CUGAUGAG GCCGUUAGGC CGAA IAAUUGUC	8416
1351	UGUCGUGC U CUCCCGCA	1017		8417
1351	UCGUGCUC U CCCGCAAA	1018	UGCGGGAG CUGAUGAG GCCGUUAGGC CGAA ICACGACA UUUGCGGG CUGAUGAG GCCGUUAGGC CGAA IAGCACGA	8418
1355	GUGCUCUC C CGCAAAUA	1019	UUUGCGGG CUGAUGAG GCCGUUAGGC CGAA IAGACCAC UAUUUGCG CUGAUGAG GCCGUUAGGC CGAA IAGAGCAC	8419
1356	UGCUCUCC C GCAAAUAU	1020	AUAUUUGC CUGAUGAG GCCGUUAGGC CGAA IAGAGCAC	8420
1359	UCUCCCGC A AAUAUACA	1021		8421
1367	AAAUAUAC A UCAUUUCC	1022	UGUAUAUU CUGAUGAG GCCGUUAGGC CGAA ICGGGAGA GGAAAUGA CUGAUGAG GCCGUUAGGC CGAA IUAUAUUU	8422
1370	UAUACAUC A UUUCCAUG	1023		8423
1375	AUCAUUUC C AUGGCUGC	1024		8424
1376	UCAUUUCC A UGGCUGCU	1025		8425
1381	UCCAUGGC U GCUAGGCU	1026	AGCAGCCA CUGAUGAG GCCGUUAGGC CGAA IGAAAUGA	8426
1384	AUGGCUGC U AGGCUGUG	1027	AGCCUAGC CUGAUGAG GCCGUUAGGC CGAA ICCAUGGA CACAGCCU CUGAUGAG GCCGUUAGGC CGAA ICAGCCAU	8427
1389	UGCUAGGC U GUGCUGCC	1028		8428
1394	GGCUGUGC U GCCAACUG	1029	GGCAGCAC CUGAUGAG GCCGUUAGGC CGAA ICCUAGCA CAGUUGGC CUGAUGAG GCCGUUAGGC CGAA ICACAGCC	8429
1397	UGUGCUGC C AACUGGAU	1030	AUCCAGUU CUGAUGAG GCCGUUAGGC CGAA ICACACA	8430
1398	GUGCUGCC A ACUGGAUC	1031	GAUCCAGU CUGAUGAG GCCGUUAGGC CGAA ICAGCACA	8431
1401	CUGCCAAC U GGAUCCUA	1032	UAGGAUCC CUGAUGAG GCCGUUAGGC CGAA IUUGGCAG	8432
1407	ACUGGAUC C UACGCGGG	1033	CCCGCGUA CUGAUGAG GCCGUUAGGC CGAA IAUCCAGU	8433
1408	CUGGAUCC U ACGCGGGA	1034	UCCCGCGU CUGAUGAG GCCGUUAGGC CGAA IGAUCCAG	8434
1421	GGGACGUC C UUUGUUUA	1035	UAAACAAA CUGAUGAG GCCGUUAGGC CGAA IACGUCCC	8435
1422	GGACGUCC U UUGUUUAC	1036	GUAAACAA CUGAUGAG GCCGUUAGGC CGAA IGACGUCC	8436
1434	UUUACGUC C CGUCGGCG	1037	CGCCGACG CUGAUGAG GCCGUUAGGC CGAA IACGUAAA	8437
1435	UUACGUCC C GUCGGCGC	1038	GCGCCGAC CUGAUGAG GCCGUUAGGC CGAA IACGUAAA	8438
1444	GUCGGCGC U GAAUCCCG	1039	CGGGAUUC CUGAUGAG GCCGUUAGGC CGAA ICGCCGAC	8439
1450	GCUGAAUC C CGCGGACG	1040	CGUCCGCG CUGAUGAG GCCGUUAGGC CGAA IAUUCAGC	8440
1451	CUGAAUCC C GCGGACGA	1041	UCGUCCGC CUGAUGAG GCCGUUAGGC CGAA IAUUCAG	8441
1461	CGGACGAC C CCUCCCGG	1042	CCGGGAGG CUGAUGAG GCCGUUAGGC CGAA IUCGUCCG	8442
1462	GGACGACC C CUCCCGGG		CCCGGGAG CUGAUGAG GCCGUUAGGC CGAA IGUCGUCC	8443
1463	GACGACCC C UCCCGGGG	1044	CCCCGGGA CUGAUGAG GCCGUUAGGC CGAA IGGUCGUC	8444
1464	ACGACCCC U CCCGGGGC	1045	GCCCCGGG CUGAUGAG GCCGUUAGGC CGAA IGGGUCGU	8445
1466	GACCCCUC C CGGGGCCG	1045	CGGCCCG CUGAUGAG GCCGUUAGGC CGAA IAGGGGUC	8446
1467	ACCCCUCC C GGGGCCGC	1047	GCGGCCCC CUGAUGAG GCCGUUAGGC CGAA IGAGGGGU	8447
1473	CCCGGGGC C GCUUGGGG		CCCCAAGC CUGAUGAG GCCGUUAGGC CGAA ICCCCGGG	8448
1476	GGGGCCGC U UGGGGCUC	1049	GAGCCCA CUGAUGAG GCCGUUAGGC CGAA ICCCCGGG	8449
1483	CUUGGGC U CUACCGCC	1050	GGCGGUAG CUGAUGAG GCCGUUAGGC CGAA ICCCCAAG	8450
1485	UGGGGCUC U ACCGCCCG	1051	CGGGCGGU CUGAUGAG GCCGUUAGGC CGAA ICCCCAAG	8451
1488	GGCUCUAC C GCCCGCUU	1052	AAGCGGGC CUGAUGAG GCCGUUAGGC CGAA IVAGAGCC	8452
	232002110 0 00000000	1053	THE TOURS OF THE T	8453

1401	HOUNGOOD O CCCUTICUC		GAGAAGCG CUGAUGAG GCCGUUAGGC CGAA ICGGUAGA	
1491	UCUACCGC C CGCUUCUC CUACCGCC C GCUUCUCC	1054	GGAGAAGC CUGAUGAG GCCGUUAGGC CGAA ICCGGUAG	8454
1495	CCGCCCGC U UCUCCGCC	1055	GGCGGAGA CUGAUGAG GCCGUUAGGC CGAA ICGGGCGG	8455
1498	CCCGCUUC U CCGCCUAU	1056	AUAGGCGG CUGAUGAG GCCGUUAGGC CGAA IAAGCGGG	8456
1500	CGCUUCUC C GCCUAUUG	1057	CAAUAGGC CUGAUGAG GCCGUUAGGC CGAA IAGAAGCG	8457
1503	UUCUCCGC C UAUUGUAC	1058	GUACAAUA CUGAUGAG GCCGUUAGGC CGAA ICGGAGAA	8458
		1059	GGUACAAU CUGAUGAG GCCGUUAGGC CGAA IGCGGAGA	8459
1504	UCUCCGCC U AUUGUACC UAUUGUAC C GACCGUCC	1060	GGACGGUC CUGAUGAG GCCGUUAGGC CGAA IUACAAUA	8460
		1061		8461
1516	GUACCGAC C GUCCACGG	1062		8462
1520	CGACCGUC C ACGGGGCG	1063	CGCCCCGU CUGAUGAG GCCGUUAGGC CGAA IACGGUCG	8463
1521	GACCGUCC A CGGGGCGC	1064	GCGCCCCG CUGAUGAG GCCGUUAGGC CGAA IGACGGUC	8464
1530	CGGGGCGC A CCUCUCUU	1065	AAGAGAGG CUGAUGAG GCCGUUAGGC CGAA ICGCCCCG	8465
1532	GGGCGCAC C UCUCUUUA	1066	UAAAGAGA CUGAUGAG GCCGUUAGGC CGAA IUGCGCCC	8466
1533	GGCGCACC U CUCUUUAC	1067	GUAAAGAG CUGAUGAG GCCGUUAGGC CGAA IGUGCGCC	8467
1535	CGCACCUC U CUUUACGC	1068	GCGUAAAG CUGAUGAG GCCGUUAGGC CGAA IAGGUGCG	8468
1537	CACCUCUC U UUACGCGG	1069	CCGCGUAA CUGAUGAG GCCGUUAGGC CGAA IAGAGGUG	8469
1548	ACGCGGAC U CCCCGUCU	1070	AGACGGGG CUGAUGAG GCCGUUAGGC CGAA IUCCGCGU	8470
1550	GCGGACUC C CCGUCUGU	1071	ACAGACGG CUGAUGAG GCCGUUAGGC CGAA IAGUCCGC	8471
1551	CGGACUCC C CGUCUGUG	1072	CACAGACG CUGAUGAG GCCGUUAGGC CGAA IGAGUCCG	8472
1552	GGACUCCC C GUCUGUGC	1073	GCACAGAC CUGAUGAG GCCGUUAGGC CGAA IGGAGUCC	8473
1556	UCCCCGUC U GUGCCUUC	1074	GAAGGCAC CUGAUGAG GCCGUUAGGC CGAA IACGGGGA	8474
1561	GUCUGUGC C UUCUCAUC	1075	GAUGAGAA CUGAUGAG GCCGUUAGGC CGAA ICACAGAC	8475
1562	UCUGUGCC U UCUCAUCU	1076	AGAUGAGA CUGAUGAG GCCGUUAGGC CGAA IGCACAGA	8476
1565	GUGCCUUC U CAUCUGCC	1077	GGCAGAUG CUGAUGAG GCCGUUAGGC CGAA IAAGGCAC	8477
1567	GCCUUCUC A UCUGCCGG	1078	CCGGCAGA CUGAUGAG GCCGUUAGGC CGAA IAGAAGGC	8478
1570	UUCUCAUC U GCCGGACC	1079	GGUCCGGC CUGAUGAG GCCGUUAGGC CGAA IAUGAGAA	8479
1573	UCAUCUGC C GGACCGUG	1080	CACGGUCC CUGAUGAG GCCGUUAGGC CGAA ICAGAUGA	8480
1578	UGCCGGAC C GUGUGCAC	1081	GUGCACAC CUGAUGAG GCCGUUAGGC CGAA IUCCGGCA	8481
1585	CCGUGUGC A CUUCGCUU	1082	AAGCGAAG CUGAUGAG GCCGUUAGGC CGAA ICACACGG	8482
1587	GUGUGCAC U UCGCUUCA	1083	UGAAGCGA CUGAUGAG GCCGUUAGGC CGAA IUGCACAC	8483
1592	CACUUCGC U UCACCUCU	1084	AGAGGUGA CUGAUGAG GCCGUUAGGC CGAA ICGAAGUG	8484
1595	UUCGCUUC A CCUCUGCA	1085	UGCAGAGG CUGAUGAG GCCGUUAGGC CGAA IAAGCGAA	8485
1597	CGCUUCAC C UCUGCACG	1086	CGUGCAGA CUGAUGAG GCCGUUAGGC CGAA IUGAAGCG	8486
1598	GCUUCACC U CUGCACGU	1087	ACGUGCAG CUGAUGAG GCCGUUAGGC CGAA IGUGAAGC	8487
1600	UUCACCUC U GCACGUCG	1088	CGACGUGC CUGAUGAG GCCGUUAGGC CGAA IAGGUGAA	8488
1603	ACCUCUGC A CGUCGCAU	1089	AUGCGACG CUGAUGAG GCCGUUAGGC CGAA ICAGAGGU	8489
1610	CACGUCGC A UGGAGACC	1090	GGUCUCCA CUGAUGAG GCCGUUAGGC CGAA ICGACGUG	8490
1618	AUGGAGAC C ACCGUGAA	1091	UUCACGGU CUGAUGAG GCCGUUAGGC CGAA IUCUCCAU	8491
1619	UGGAGACC A CCGUGAAC	1092	GUUCACGG CUGAUGAG GCCGUUAGGC CGAA IGUCUCCA	8492
1621	GAGACCAC C GUGAACGC	1093	GCGUUCAC CUGAUGAG GCCGUUAGGC CGAA IUGGUCUC	8493
1630	GUGAACGC C CACAGGAA	1094	UUCCUGUG CUGAUGAG GCCGUUAGGC CGAA ICGUUCAC	8494
1631	UGAACGCC C ACAGGAAC	1095	GUUCCUGU CUGAUGAG GCCGUUAGGC CGAA IGCGUUCA	8495
1632	GAACGCCC A CAGGAACC	1096	GGUUCCUG CUGAUGAG GCCGUUAGGC CGAA IGGCGUUC	8496
1634	ACGCCCAC A GGAACCUG	1097	CAGGUUCC CUGAUGAG GCCGUUAGGC CGAA IUGGGCGU	8497
1640	ACAGGAAC C UGCCCAAG	1098	CUUGGGCA CUGAUGAG GCCGUUAGGC CGAA IUUCCUGU	8498
1641	CAGGAACC U GCCCAAGG	1099	CCUUGGGC CUGAUGAG GCCGUUAGGC CGAA IGUUCCUG	8499
1644	GAACCUGC C CAAGGUCU	1100	AGACCUUG CUGAUGAG GCCGUUAGGC CGAA ICAGGUUC	8500
1645	AACCUGCC C AAGGUCUU	1101	AAGACCUU CUGAUGAG GCCGUUAGGC CGAA IGCAGGUU	
1646	ACCUGCCC A AGGUCUUG	1102	CAAGACCU CUGAUGAG GCCGUUAGGC CGAA IGGCAGGU	8501
1652	CCAAGGUC U UGCAUAAG	1102	CUUAUGCA CUGAUGAG GCCGUUAGGC CGAA IACCUUGG	8502
1656	GGUCUUGC A UAAGAGGA	1103	UCCUCUUA CUGAUGAG GCCGUUAGGC CGAA ICAAGACC	8503
		+104	TOTAL CONTROL COM TOMARCO	8504

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1666	AAGAGGAC U CUUGGACU	1105	AGUCCAAG CUGAUGAG GCCGUUAGGC CGAA IUCCUCUU	8505
1668	GAGGACUC U UGGACUUU	1106	AAAGUCCA CUGAUGAG GCCGUUAGGC CGAA IAGUCCUC	8506
1674	UCUUGGAC U UUCAGCAA	1107	UUGCUGAA CUGAUGAG GCCGUUAGGC CGAA IUCCAAGA	8507
1678	GGACUUUC A GCAAUGUC	1108	GACAUUGC CUGAUGAG GCCGUUAGGC CGAA IAAAGUCC	8508
1681	CUUUCAGC A AUGUCAAC	1109	GUUGACAU CUGAUGAG GCCGUUAGGC CGAA ICUGAAAG	8509
1687	GCAAUGUC A ACGACCGA	1110	UCGGUCGU CUGAUGAG GCCGUUAGGC CGAA IACAUUGC	8510
1693	UCAACGAC C GACCUUGA	1111	UCAAGGUC CUGAUGAG GCCGUUAGGC CGAA IUCGUUGA	8511
1697	CGACCGAC C UUGAGGCA	1112	UGCCUCAA CUGAUGAG GCCGUUAGGC CGAA IUCGGUCG	8512
1698	GACCGACC U UGAGGCAU	1113	AUGCCUCA CUGAUGAG GCCGUUAGGC CGAA IGUCGGUC	8513
1705	CUUGAGGC A UACUUCAA	1114	UUGAAGUA CUGAUGAG GCCGUUAGGC CGAA ICCUCAAG	8514
1709	AGGCAUAC U UCAAAGAC	1115	GUCUUUGA CUGAUGAG GCCGUUAGGC CGAA IUAUGCCU	8515
1712	CAUACUUC A AAGACUGU	1116	ACAGUCUU CUGAUGAG GCCGUUAGGC CGAA IAAGUAUG	8516
1718	UCAAAGAC U GUGUGUUU	1117	AAACACAC CUGAUGAG GCCGUUAGGC CGAA IUCUUUGA	8517
1769	UAAAGGUC U UUGUACUA	1118	UAGUACAA CUGAUGAG GCCGUUAGGC CGAA IACCUUUA	8518
1776	CUUUGUAC U AGGAGGCU	1119	AGCCUCCU CUGAUGAG GCCGUUAGGC CGAA IUACAAAG	8519
1784	UAGGAGGC U GUAGGCAU	1120	AUGCCUAC CUGAUGAG GCCGUUAGGC CGAA ICCUCCUA	8520
1791	CUGUAGGC A UAAAUUGG	1121	CCAAUUUA CUGAUGAG GCCGUUAGGC CGAA ICCUACAG	8521
1807	GUGUGUUC A CCAGCACC	1122	GGUGCUGG CUGAUGAG GCCGUUAGGC CGAA IAACACAC	8522
1809	GUGUUCAC C AGCACCAU	1123	AUGGUGCU CUGAUGAG GCCGUUAGGC CGAA IUGAACAC	8523
1810	UGUUCACC A GCACCAUG	1124	CAUGGUGC CUGAUGAG GCCGUUAGGC CGAA IGUGAACA	8524
1813	UCACCAGC A CCAUGCAA	1125	UUGCAUGG CUGAUGAG GCCGUUAGGC CGAA ICUGGUGA	8525
1815	ACCAGCAC C AUGCAACU	1126	AGUUGCAU CUGAUGAG GCCGUUAGGC CGAA IUGCUGGU	8526
1816	CCAGCACC A UGCAACUU	1127	AAGUUGCA CUGAUGAG GCCGUUAGGC CGAA IGUGCUGG	8527
1820	CACCAUGC A ACUUUUUC	1128	GAAAAAGU CUGAUGAG GCCGUUAGGC CGAA ICAUGGUG	8528
1823	CAUGCAAC U UUUUCACC	1129	GGUGAAAA CUGAUGAG GCCGUUAGGC CGAA IUUGCAUG	8529
1829	ACUUUUUC A CCUCUGCC	1130	GGCAGAGG CUGAUGAG GCCGUUAGGC CGAA IAAAAAGU	8530
1831	UUUUUCAC C UCUGCCUA	1131	UAGGCAGA CUGAUGAG GCCGUUAGGC CGAA IUGAAAAA	8531
1832	UUUUCACC U CUGCCUAA	1132	UUAGGCAG CUGAUGAG GCCGUUAGGC CGAA IGUGAAAA	8532
1834	UUCACCUC U GCCUAAUC	1133	GAUUAGGC CUGAUGAG GCCGUUAGGC CGAA IAGGUGAA	8533
1837	ACCUCUGC C UAAUCAUC	1134	GAUGAUUA CUGAUGAG GCCGUUAGGC CGAA ICAGAGGU	8534
1838	CCUCUGCC U AAUCAUCU	1135	AGAUGAUU CUGAUGAG GCCGUUAGGC CGAA IGCAGAGG	8535
1843	GCCUAAUC A UCUCAUGU	1136	ACAUGAGA CUGAUGAG GCCGUUAGGC CGAA IAUUAGGC	8536
1846	UAAUCAUC U CAUGUUCA	1137	UGAACAUG CUGAUGAG GCCGUUAGGC CGAA IAUGAUUA	8537
1848	AUCAUCUC A UGUUCAUG	1138	CAUGAACA CUGAUGAG GCCGUUAGGC CGAA IAGAUGAU	8538
1854	UCAUGUUC A UGUCCUAC	1139	GUAGGACA CUGAUGAG GCCGUUAGGC CGAA IAACAUGA	8539
1859	UUCAUGUC C UACUGUUC	1140	GAACAGUA CUGAUGAG GCCGUUAGGC CGAA IACAUGAA	8540
1860	UCAUGUCC U ACUGUUCA	1141	UGAACAGU CUGAUGAG GCCGUUAGGC CGAA IGACAUGA	8541
1863	UGUCCUAC U GUUCAAGC	1142	GCUUGAAC CUGAUGAG GCCGUUAGGC CGAA IUAGGACA	8542
1868	UACUGUUC A AGCCUCCA	1143	UGGAGGCU CUGAUGAG GCCGUUAGGC CGAA IAACAGUA	8543
1872	GUUCAAGC C UCCAAGCU	1144	AGCUUGGA CUGAUGAG GCCGUUAGGC CGAA ICUUGAAC	8544
1873	UUCAAGCC U CCAAGCUG	1145	CAGCUUGG CUGAUGAG GCCGUUAGGC CGAA IGCUUGAA	8545
1875	CAAGCCUC C AAGCUGUG	1146	CACAGCUU CUGAUGAG GCCGUUAGGC CGAA IAGGCUUG	8546
1876	AAGCCUCC A AGCUGUGC	1147	GCACAGCU CUGAUGAG GCCGUUAGGC CGAA IGAGGCUU	8547
1880	CUCCAAGC U GUGCCUUG	1148	CAAGGCAC CUGAUGAG GCCGUUAGGC CGAA ICUUGGAG	8548
1885	AGCUGUGC C UUGGGUGG	1149	CCACCCAA CUGAUGAG GCCGUUAGGC CGAA ICACAGCU	8549
1886	GCUGUGCC U UGGGUGGC	1150	GCCACCCA CUGAUGAG GCCGUUAGGC CGAA IGCACAGC	8550
1895	UGGGUGGC U UUGGGGCA	1151	UGCCCCAA CUGAUGAG GCCGUUAGGC CGAA ICCACCCA	8551
1903	UUUGGGGC A UGGACAUU	1152	AAUGUCCA CUGAUGAG GCCGUUAGGC CGAA ICCCCAAA	8552
1909	GCAUGGAC A UUGACCCG	1153	CGGGUCAA CUGAUGAG GCCGUUAGGC CGAA IUCCAUGC	8553
1915	ACAUUGAC C CGUAUAAA	1154	UUUAUACG CUGAUGAG GCCGUUAGGC CGAA IUCAAUGU	8554
1916	CAUUGACC C GUAUAAAG	1155	CUUUAUAC CUGAUGAG GCCGUUAGGC CGAA IGUCAAUG	8555
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1935	UUUGGAGC U UCUGUGGA	1156	UCCACAGA CUGAUGAG GCCGUUAGGC CGAA ICUCCAAA	0556
1938	GGAGCUUC U GUGGAGUU	1156	AACUCCAC CUGAUGAG GCCGUUAGGC CGAA IAAGCUCC	8556
1949	GGAGUUAC U CUCUUUUU	1157	AAAAAGAG CUGAUGAG GCCGUUAGGC CGAA IUAACUCC	8557
1951	AGUUACUC U CUUUUUUG	1158	CAAAAAAG CUGAUGAG GCCGUUAGGC CGAA IAGUAACU	8558
1953	UUACUCUC U UUUUUGCC		GGCAAAAA CUGAUGAG GCCGUUAGGC CGAA IAGAGUAA	8559
1961	UUUUUUGC C UUCUGACU	1160	AGUCAGAA CUGAUGAG GCCGUUAGGC CGAA ICAAAAAA	8560
1962	UUUUUGCC U UCUGACUU	1161	AAGUCAGA CUGAUGAG GCCGUUAGGC CGAA IGCAAAAA	8561
1965	UUGCCUUC U GACUUCUU	1162	AAGAAGUC CUGAUGAG GCCGUUAGGC CGAA IAAGGCAA	8562
1969	CUUCUGAC U UCUUUCCU	1163	AGGAAAGA CUGAUGAG GCCGUUAGGC CGAA IUCAGAAG	8563
1972	CUGACUUC U UUCCUUCU	1164	AGAAGGAA CUGAUGAG GCCGUUAGGC CGAA IAAGUCAG	8564
1976	CUUCUUUC C UUCUAUUC	1165	GAAUAGAA CUGAUGAG GCCGUUAGGC CGAA IAAAGAAG	8565
1977	UUCUUUCC U UCUAUUCG	1166	CGAAUAGA CUGAUGAG GCCGUUAGGC CGAA IGAAAGAA	8566
1980	UUUCCUUC U AUUCGAGA	1167	UCUCGAAU CUGAUGAG GCCGUUAGGC CGAA IAAGGAAA	8567
1991	UCGAGAUC U CCUCGACA	1168	UGUCGAGG CUGAUGAG GCCGUUAGGC CGAA IAUCUCGA	8568
1993	GAGAUCUC C UCGACACC	1169_	GGUGUCGA CUGAUGAG GCCGUUAGGC CGAA IAGAUCUC	8569
1994	AGAUCUCC U CGACACCG	1170	CGGUGUCG CUGAUGAG GCCGUUAGGC CGAA IGAGAUCU	8570
1999	UCCUCGAC A CCGCCUCU	1171	AGAGGCGG CUGAUGAG GCCGUUAGGC CGAA IUCGAGGA	8571
2001	CUCGACAC C GCCUCUGC	1172	GCAGAGGC CUGAUGAG GCCGUUAGGC CGAA IUGUCGAG	8572
2001	GACACCGC C UCUGCUCU	1173	AGAGCAGA CUGAUGAG GCCGUUAGGC CGAA ICGGUGUC	8573
2005	ACACCGCC U CUGCUCUG	1174	CAGAGCAG CUGAUGAG GCCGUUAGGC CGAA IGCGGUGU	8574
2007	ACCGCCUC U GCUCUGUA	1175	UACAGAGC CUGAUGAG GCCGUUAGGC CGAA IAGGCGGU	8575
2010	GCCUCUGC U CUGUAUCG	1176	CGAUACAG CUGAUGAG GCCGUUAGGC CGAA ICAGAGGC	8576
2012	CUCUGCUC U GUAUCGGG	1177	CCCGAUAC CUGAUGAG GCCGUUAGGC CGAA IAGCAGAG	8577
2025	CGGGGGGC C UUAGAGUC	1178	GACUCUAA CUGAUGAG GCCGUUAGGC CGAA ICCCCCCG	8578
2026	GGGGGCC U UAGAGUCU	1179	AGACUCUA CUGAUGAG GCCGUUAGGC CGAA IGCCCCCC	8579
2034	UUAGAGUC U CCGGAACA	1180	UGUUCCGG CUGAUGAG GCCGUUAGGC CGAA IACUCUAA	8580
2034	AGAGUCUC C GGAACAUU	1181	AAUGUUCC CUGAUGAG GCCGUUAGGC CGAA IAGACUCU	8581
2042	UCCGGAAC A UUGUUCAC	1182	GUGAACAA CUGAUGAG GCCGUUAGGC CGAA IUUCCGGA	8582
2049	CAUUGUUC A CCUCACCA	1183 1184	UGGUGAGG CUGAUGAG GCCGUUAGGC CGAA IAACAAUG	8583
2051	UUGUUCAC C UCACCAUA	1185	UAUGGUGA CUGAUGAG GCCGUUAGGC CGAA IUGAACAA	8584
2052	UGUUCACC U CACCAUAC	1186	GUAUGGUG CUGAUGAG GCCGUUAGGC CGAA IGUGAACA	8585 8586
2054	UUCACCUC A CCAUACGG	1187	CCGUAUGG CUGAUGAG GCCGUUAGGC CGAA IAGGUGAA	8587
2056	CACCUCAC C AUACGGCA	1188	UGCCGUAU CUGAUGAG GCCGUUAGGC CGAA IUGAGGUG	
2057	ACCUCACC A UACGGCAC	1189	GUGCCGUA CUGAUGAG GCCGUUAGGC CGAA IGUGAGGU	8588
2064	CAUACGGC A CUCAGGCA	1190	UGCCUGAG CUGAUGAG GCCGUUAGGC CGAA ICCGUAUG	8589
2066	UACGGCAC U CAGGCAAG	1191	CUUGCCUG CUGAUGAG GCCGUUAGGC CGAA IUGCCGUA	8590
2068	CGGCACUC A GGCAAGCU	1192	AGCUUGCC CUGAUGAG GCCGUUAGGC CGAA IAGUGCCG	8591 8592
2072	ACUCAGGC A AGCUAUUC	1193	GAAUAGCU CUGAUGAG GCCGUUAGGC CGAA ICCUGAGU	8593
2076	AGGCAAGC U AUUCUGUG	1194	CACAGAAU CUGAUGAG GCCGUUAGGC CGAA ICUUGCCU	8594
2081	AGCUAUUC U GUGUUGGG	1195	CCCAACAC CUGAUGAG GCCGUUAGGC CGAA IAAUAGCU	8595
2105	GAUGAAUC U AGCCACCU	1196	AGGUGGCU CUGAUGAG GCCGUUAGGC CGAA IAUUCAUC	8596
2109	AAUCUAGC C ACCUGGGU	1197	ACCCAGGU CUGAUGAG GCCGUUAGGC CGAA ICUAGAUU	8597
2110	AUCUAGCC A CCUGGGUG	1198	CACCCAGG CUGAUGAG GCCGUUAGGC CGAA IGCUAGAU	8598
2112	CUAGCCAC C UGGGUGGG	1199	CCCACCCA CUGAUGAG GCCGUUAGGC CGAA IUGGCUAG	8599
2113	UAGCCACC U GGGUGGGA	1200	UCCCACCC CUGAUGAG GCCGUUAGGC CGAA IGUGGCUA	8600
2138	GGAAGAUC C AGCAUCCA	1201	UGGAUGCU CUGAUGAG GCCGUUAGGC CGAA IAUCUUCC	8601
2139	GAAGAUCC A GCAUCCAG	1202	CUGGAUGC CUGAUGAG GCCGUUAGGC CGAA IGAUCUUC	8602
2142	GAUCCAGC A UCCAGGGA	1203	UCCCUGGA CUGAUGAG GCCGUUAGGC CGAA ICUGGAUC	8603
2145	CCAGCAUC C AGGGAAUU	1204	AAUUCCCU CUGAUGAG GCCGUUAGGC CGAA IAUGCUGG	8604
2146	CAGCAUCC A GGGAAUUA	1205	UAAUUCCC CUGAUGAG GCCGUUAGGC CGAA IGAUGCUG	8605
2161	UAGUAGUC A GCUAUGUC	1206	GACAUAGC CUGAUGAG GCCGUUAGGC CGAA IACUACUA	8606
	I			0000

2164	UAGUCAGC U AUGUCAAC	1007	GUUGACAU CUGAUGAG GCCGUUAGGC CGAA ICUGACUA	0607
2170	GCUAUGUC A ACGUUAAU	1207	AUUAACGU CUGAUGAG GCCGUUAGGC CGAA IACAUAGC	8607
2185	AUAUGGGC C UAAAAAUC	1209	GAUUUUUA CUGAUGAG GCCGUUAGGC CGAA ICCCAUAU	8608
2186	UAUGGGCC U AAAAAUCA		UGAUUUUU CUGAUGAG GCCGUUAGGC CGAA IGCCCAUA	
2194	UAAAAAUC A GACAACUA	1210	UAGUUGUC CUGAUGAG GCCGUUAGGC CGAA IAUUUUUA	8610
2198	AAUCAGAC A ACUAUUGU	1211	ACAAUAGU CUGAUGAG GCCGUUAGGC CGAA IUCUGAUU	8611
2201	CAGACAAC U AUUGUGGU	1212	ACCACAAU CUGAUGAG GCCGUUAGGC CGAA IUUGUCUG	8612
2213	GUGGUUUC A CAUUUCCU	1213	AGGAAAUG CUGAUGAG GCCGUUAGGC CGAA IAAACCAC	8613
2215	GGUUUCAC A UUUCCUGU	1214	ACAGGAAA CUGAUGAG GCCGUUAGGC CGAA IUGAAACC	8614
2220	CACAUUUC C UGUCUUAC	1215	GUAAGACA CUGAUGAG GCCGUUAGGC CGAA IAAAUGUG	8615
2221	ACAUUUCC U GUCUUACU	1216	AGUAAGAC CUGAUGAG GCCGUUAGGC CGAA IGAAAUGU	8616
2225	UUCCUGUC U UACUUUUG	1217	CAAAAGUA CUGAUGAG GCCGUUAGGC CGAA IACAGGAA	8617
2229	UGUCUUAC U UUUGGGCG	1218	CGCCCAAA CUGAUGAG GCCGUUAGGC CGAA IUAAGACA	8618
2244	CGAGAAAC U GUUCUUGA	1219	UCAAGAAC CUGAUGAG GCCGUUAGGC CGAA IUUUCUCG	8619
2249	AACUGUUC U UGAAUAUU	1220	AAUAUUCA CUGAUGAG GCCGUUAGGC CGAA IAACAGUU	8620
2265	UUGGUGUC U UUUGGAGU	1221	ACUCCAAA CUGAUGAG GCCGUUAGGC CGAA IACACCAA	8621
2284	GGAUUCGC A CUCCUCCU	1222	AGGAGGAG CUGAUGAG GCCGUUAGGC CGAA IACACCAA AGGAGGAG CUGAUGAG GCCGUUAGGC CGAA ICGAAUCC	8622
2286	AUUCGCAC U CCUCCUGC	1223		8623
2288	UCGCACUC C UCCUGCAU	1224		8624
2289	CGCACUCC U CCUGCAUA	1225	AUGCAGGA CUGAUGAG GCCGUUAGGC CGAA IAGUGCGA	8625
2291	CACUCCUC C UGCAUAUA	1226	UAUGCAGG CUGAUGAG GCCGUUAGGC CGAA IGAGUGCG UAUAUGCA CUGAUGAG GCCGUUAGGC CGAA IAGGAGUG	8626
2292	ACUCCUCC U GCAUAUAG	1227		8627
	 	1228		8628
2295	CCUCCUGC A UAUAGACC	1229	GGUCUAUA CUGAUGAG GCCGUUAGGC CGAA ICAGGAGG	8629
2303	AUAUAGAC C ACCAAAUG	1230	CAUUUGGU CUGAUGAG GCCGUUAGGC CGAA IUCUAUAU	8630
2304	UAUAGACC A CCAAAUGC UAGACCAC C AAAUGCCC	1231	GCAUUUGG CUGAUGAG GCCGUUAGGC CGAA IGUCUAUA	8631
	AGACCACC A AAUGCCCC	1232	GGGCAUUU CUGAUGAG GCCGUUAGGC CGAA IUGGUCUA	8632
2307	CCAAAUGC C CCUAUCUU	1233	GGGGCAUU CUGAUGAG GCCGUUAGGC CGAA IGUGGUCU	8633
2314	CAAAUGCC C CUAUCUUA	1234	AAGAUAGG CUGAUGAG GCCGUUAGGC CGAA ICAUUUGG UAAGAUAG CUGAUGAG GCCGUUAGGC CGAA IGCAUUUG	8634
2314	AAAUGCCC C UAUCUUAU	1235		8635
2316	AAUGCCCC U AUCUUAUC	1236	AUAAGAUA CUGAUGAG GCCGUUAGGC CGAA IGGCAUUU GAUAAGAU CUGAUGAG GCCGUUAGGC CGAA IGGGCAUU	8636
2320	CCCCUAUC U UAUCAACA	1237		8637
2325	AUCUUAUC A ACACUUCC	1238		8638
2328	UUAUCAAC A CUUCCGGA	1239		8639
2330	AUCAACAC U UCCGGAAA	1240		8640
2333	AACACUUC C GGAAACUA	1241		8641
		1242	UAGUUUCC CUGAUGAG GCCGUUAGGC CGAA IAAGUGUU	8642
2340	GAAACUAC U GUUGUUGU GAAACUAC U GUUGUUAG	1243	ACAACAGU CUGAUGAG GCCGUUAGGC CGAA IUUUCCGG CUAACAAC CUGAUGAG GCCGUUAGGC CGAA IUAGUUUC	8643
2343	GAAGAGGC A GGUCCCCU	1244	AGGGGACC CUGAUGAG GCCGUUAGGC CGAA ICCUCUUC	8644
2362	GGCAGGUC C CCUAGAAG	1245	CUUCUAGG CUGAUGAG GCCGUUAGGC CGAA ICCUCUUC	8645
2368	GCAGGUCC C CUAGAAGA	1246	UCUUCUAG CUGAUGAG GCCGUUAGGC CGAA IACCUGC	8646
2369	CAGGUCCC C UAGAAGAA	1247	UUCUUCUA CUGAUGAG GCCGUUAGGC CGAA IGACCUG	8647
2370	AGGUCCCC U AGAAGAAG	1248	CUUCUUCU CUGAUGAG GCCGUUAGGC CGAA IGGACCUG	8648
2370	AGAAGAAC U CCCUCGCC	1249	GGCGAGGG CUGAUGAG GCCGUUAGGC CGAA IUUCUUCU	8649
2382	AAGAACUC C CUCGCCUC	1250		8650
2385	AGAACUCC C UCGCCUCG	1251	GAGGCGAG CUGAUGAG GCCGUUAGGC CGAA IAGUUCUU CGAGGCGA CUGAUGAG GCCGUUAGGC CGAA IGAGUUCU	8651
2386	GAACUCCC U CGCCUCGC	1252		8652
2386	UCCCUCGC C UCGCAGAC	1253	GCGAGGCG CUGAUGAG GCCGUUAGGC CGAA IGGAGUUC GUCUGCGA CUGAUGAG GCCGUUAGGC CGAA ICGAGGGA	8653
2390	CCCUCGCC U CGCAGACG	1254	CGUCUGCG CUGAUGAG GCCGUUAGGC CGAA ICCGAGGGA	8654
2391	CGCCUCGC A GACGAAGG	1255	CCUUCGUC CUGAUGAG GCCGUUAGGC CGAA ICGAGGCG CCUUCGUC CUGAUGAG GCCGUUAGGC CGAA ICGAGGCG	8655
2395	CGAAGGUC U CAAUCGCC	1256	GCGAUUG CUGAUGAG GCCGUUAGGC CGAA ICCGUCG	8656
4700	COARGOC O CAROCOCC	1257	GCCGOOG COGNOGG GCCGOOAGGC CGAA TACCOOCG	8657

2408	AAGGUCUC A AUCGCCGC	1050	GCGGCGAU CUGAUGAG GCCGUUAGGC CGAA IAGACCUU	T
2414	UCAAUCGC C GCGUCGCA	1258	UGCGACGC CUGAUGAG GCCGUUAGGC CGAA IAGACCUGA	8658
2422	CGCGUCGC A GAAGAUCU	1259	AGAUCUUC CUGAUGAG GCCGUUAGGC CGAA ICGACGCG	8659
2430	AGAAGAUC U CAAUCUCG	1260		8660
2432	AAGAUCUC A AUCUCGGG	1261		8661
2432	UCUCAAUC U CGGGAAUC	1262		8662
2445	CGGGAAUC U CAAUGUUA	1263		8663
2447		1264	UAACAUUG CUGAUGAG GCCGUUAGGC CGAA IAUUCCCG	8664
2460	GGAAUCUC A AUGUUAGU UAGUAUUC C UUGGACAC	1265	ACUAACAU CUGAUGAG GCCGUUAGGC CGAA IAGAUUCC GUGUCCAA CUGAUGAG GCCGUUAGGC CGAA IAAUACUA	8665
2461	AGUAUUCC U UGGACACA	1266		8666
<u> </u>	CCUUGGAC A CAUAAGGU	1267	UGUGUCCA CUGAUGAG GCCGUUAGGC CGAA IGAAUACU	8667
2467	UUGGACAC A UAAGGUGG	1268	ACCUVAUG CUGAUGAG GCCGUVAGGC CGAA IUCCAAGG	8668
2483	UGGGAAAC U UUACGGGG	1269	CCCCCUA CUCAUGAG GCCGUUAGGC CGAA IUGUCCAA	8669
<u> </u>	UACGGGGC U UUAUUCUU	1270	CCCCGUAA CUGAUGAG GCCGUUAGGC CGAA IUUUCCCA	8670
2493		1271	AAGAAUAA CUGAUGAG GCCGUUAGGC CGAA ICCCCGUA	8671
2500	CUUUAUUC U UCUACGGU	1272	ACCGUAGA CUGAUGAG GCCGUUAGGC CGAA IAAUAAAG	8672
2503	UAUUCUUC U ACGGUACC	1273	GGUACCGU CUGAUGAG GCCGUUAGGC CGAA IAAGAAUA	8673
2511	UACGGUAC C UUGCUUUA	1274	UAAAGCAA CUGAUGAG GCCGUUAGGC CGAA IUACCGUA	8674
2512	ACGGUACC U UGCUUUAA	1275	UUAAAGCA CUGAUGAG GCCGUUAGGC CGAA IGUACCGU	8675
2516	UACCUUGC U UUAAUCCU	1276	AGGAUUAA CUGAUGAG GCCGUUAGGC CGAA ICAAGGUA	8676
2523	CUUUAAUC C UAAAUGGC	1277	GCCAUUUA CUGAUGAG GCCGUUAGGC CGAA IAUUAAAG	8677
2524	UUUAAUCC U AAAUGGCA	1278	UGCCAUUU CUGAUGAG GCCGUUAGGC CGAA IGAUUAAA	8678
2532	UAAAUGGC A AACUCCUU	1279	AAGGAGUU CUGAUGAG GCCGUUAGGC CGAA ICCAUUUA	8679
2536	UGGCAAAC U CCUUCUUU	1280	AAAGAAGG CUGAUGAG GCCGUUAGGC CGAA IUUUGCCA	8680
2538	GCAAACUC C UUCUUUUC	1281	GAAAAGAA CUGAUGAG GCCGUUAGGC CGAA IAGUUUGC	8681
2539	CAAACUCC U UCUUUUCC	1282	GGAAAAGA CUGAUGAG GCCGUUAGGC CGAA IGAGUUUG	8682
2542	ACUCCUUC U UUUCCUGA	1283	UCAGGAAA CUGAUGAG GCCGUUAGGC CGAA IAAGGAGU	8683
2547	UUCUUUUC C UGACAUUC	1284	GAAUGUCA CUGAUGAG GCCGUUAGGC CGAA IAAAAGAA	8684
2548	UCUUUUCC U GACAUUCA	1285	UGAAUGUC CUGAUGAG GCCGUUAGGC CGAA IGAAAAGA	8685
2552	UUCCUGAC A UUCAUUUG	1286	CAAAUGAA CUGAUGAG GCCGUUAGGC CGAA IUCAGGAA	8686
2556	UGACAUUC A UUUGCAGG	1287	CCUGCAAA CUGAUGAG GCCGUUAGGC CGAA IAAUGUCA	8687
2562	UCAUUUGC A GGAGGACA	1288	UGUCCUCC CUGAUGAG GCCGUUAGGC CGAA ICAAAUGA	8688
2570	AGGAGGAC A UUGUUGAU	1289	AUCAACAA CUGAUGAG GCCGUUAGGC CGAA IUCCUCCU	8689
2589	AUGUAAGC A AUUUGUGG	1290	CCACAAAU CUGAUGAG GCCGUUAGGC CGAA ICUUACAU	8690
2601	UGUGGGGC C CCUUACAG	1291	CUGUAAGG CUGAUGAG GCCGUUAGGC CGAA ICCCCACA	8691
2602	GUGGGGCC C CUUACAGU	1292	ACUGUAAG CUGAUGAG GCCGUUAGGC CGAA IGCCCCAC	8692
2603	UGGGGCCC C UUACAGUA	1293	UACUGUAA CUGAUGAG GCCGUUAGGC CGAA IGGCCCCA	8693
2604	GGGGCCCC U UACAGUAA	1294	UUACUGUA CUGAUGAG GCCGUUAGGC CGAA IGGGCCCC	8694
2608	CCCCUUAC A GUAAAUGA	1295	UCAUUUAC CUGAUGAG GCCGUUAGGC CGAA IUAAGGGG	8695
2621	AUGAAAAC A GGAGACUU	1296	AAGUCUCC CUGAUGAG GCCGUUAGGC CGAA IUUUUCAU	8696
2628	CAGGAGAC U UAAAUUAA	1297	UUAAUUUA CUGAUGAG GCCGUUAGGC CGAA IUCUCCUG	8697
2638	AAAUUAAC U AUGCCUGC	1298	GCAGGCAU CUGAUGAG GCCGUUAGGC CGAA IUUAAUUU	8698
2643	AACUAUGC C UGCUAGGU	1299	ACCUAGCA CUGAUGAG GCCGUUAGGC CGAA ICAUAGUU	8699
2644	ACUAUGCC U GCUAGGUU	1300	AACCUAGC CUGAUGAG GCCGUUAGGC CGAA IGCAUAGU	8700
2647	AUGCCUGC U AGGUUUUA	1301	UAAAACCU CUGAUGAG GCCGUUAGGC CGAA ICAGGCAU	8701
2658	GUUUUAUC C CAAUGUUA	1302	UAACAUUG CUGAUGAG GCCGUUAGGC CGAA IAUAAAAC	8702
2659	UUUUAUCC C AAUGUUAC	1303	GUAACAUU CUGAUGAG GCCGUUAGGC CGAA IGAUAAAA	8703
2660	UUUAUCCC A AUGUUACU	1304	AGUAACAU CUGAUGAG GCCGUUAGGC CGAA IGGAUAAA	8704
2668	AAUGUUAC U AAAUAUUU	1305	AAAUAUUU CUGAUGAG GCCGUUAGGC CGAA IUAACAUU	8705
2679	AUAUUUGC C CUUAGAUA	1306	UAUCUAAG CUGAUGAG GCCGUUAGGC CGAA ICAAAUAU	8706
2680	UAUUUGCC C UUAGAUAA	1307	UUAUCUAA CUGAUGAG GCCGUUAGGC CGAA IGCAAAUA	8707
2681	AUUUGCCC U UAGAUAAA	1308	UUUAUCUA CUGAUGAG GCCGUUAGGC CGAA IGGCAAAU	8708

2606	ANCOCALIO A ANCOCITATI		AUACGGUU CUGAUGAG GCCGUUAGGC CGAA IAUCCCUU	T = 1
2696	AAGGGAUC A AACCGUAU	1309	GAUAAUAC CUGAUGAG GCCGUUAGGC CGAA IUUUGAUC	8709
2700	GAUCAAAC C GUAUUAUC	1310		8710
2709	GUAUUAUC C AGAGUAUG	1311		8711
2710	UAUUAUCC A GAGUAUGU	1312	ACAUACUC CUGAUGAG GCCGUUAGGC CGAA IGAUAAUA	8712
2727	AGUUAAUC A UUACUUCC	1313	GGAAGUAA CUGAUGAG GCCGUUAGGC CGAA IAUUAACU	8713
2732	AUCAUUAC U UCCAGACG	1314	CGUCUGGA CUGAUGAG GCCGUUAGGC CGAA IUAAUGAU	8714
2735	AUUACUUC C AGACGCGA	1315	UCGCGUCU CUGAUGAG GCCGUUAGGC CGAA IAAGUAAU	8715
2736	UUACUUCC A GACGCGAC	1316	GUCGCGUC CUGAUGAG GCCGUUAGGC CGAA IGAAGUAA	8716
2745	GACGCGAC A UUAUUUAC	1317	GUAAAUAA CUGAUGAG GCCGUUAGGC CGAA IUCGCGUC	8717
2754	UUAUUUAC A CACUCUUU	1318	AAAGAGUG CUGAUGAG GCCGUUAGGC CGAA IUAAAUAA	8718
2756	AUUUACAC A CUCUUUGG	1319	CCAAAGAG CUGAUGAG GCCGUUAGGC CGAA IUGUAAAU	8719
2758	UUACACAC U CUUUGGAA	1320	UUCCAAAG CUGAUGAG GCCGUUAGGC CGAA IUGUGUAA	8720
2760	ACACACUC U UUGGAAGG	1321	CCUUCCAA CUGAUGAG GCCGUUAGGC CGAA IAGUGUGU	8721
2777	CGGGGAUC U UAUAUAAA	1322	UUUAUAUA CUGAUGAG GCCGUUAGGC CGAA IAUCCCCG	8722
2794	AGAGAGUC C ACACGUAG	1323	CUACGUGU CUGAUGAG GCCGUUAGGC CGAA IACUCUCU	8723
2795	GAGAGUCC A CACGUAGC	1324	GCUACGUG CUGAUGAG GCCGUUAGGC CGAA IGACUCUC	8724
2797	GAGUCCAC A CGUAGCGC	1325	GCGCUACG CUGAUGAG GCCGUUAGGC CGAA IUGGACUC	8725
2806	CGUAGCGC C UCAUUUUG	1326	CAAAAUGA CUGAUGAG GCCGUUAGGC CGAA ICGCUACG	8726
2807	GUAGCGCC U CAUUUUGC	1327	GCAAAAUG CUGAUGAG GCCGUUAGGC CGAA IGCGCUAC	8727
2809	AGCGCCUC A UUUUGCGG	1328	CCGCAAAA CUGAUGAG GCCGUUAGGC CGAA IAGGCGCU	8728
2821	UGCGGGUC A CCAUAUUC	1329	GAAUAUGG CUGAUGAG GCCGUUAGGC CGAA IACCCGCA	8729
2823	CGGGUCAC C AUAUUCUU	1330	AAGAAUAU CUGAUGAG GCCGUUAGGC CGAA IUGACCCG	8730
2824	GGGUCACC A UAUUCUUG	1331	CAAGAAUA CUGAUGAG GCCGUUAGGC CGAA IGUGACCC	8731
2830	CCAUAUUC U UGGGAACA	1332	UGUUCCCA CUGAUGAG GCCGUUAGGC CGAA IAAUAUGG	8732
2838	UUGGGAAC A AGAUCUAC	1333	GUAGAUCU CUGAUGAG GCCGUUAGGC CGAA IUUCCCAA	8733
2844	ACAAGAUC U ACAGCAUG	1334	CAUGCUGU CUGAUGAG GCCGUUAGGC CGAA IAUCUUGU	8734
2847	AGAUCUAC A GCAUGGGA	1335	UCCCAUGC CUGAUGAG GCCGUUAGGC CGAA IUAGAUCU	8735
2850	UCUACAGC A UGGGAGGU	1336	ACCUCCCA CUGAUGAG GCCGUUAGGC CGAA ICUGUAGA	8736
2864	GGUUGGUC U UCCAAACC	1337	GGUUUGGA CUGAUGAG GCCGUUAGGC CGAA IACCAACC	8737
2867	UGGUCUUC C AAACCUCG	1338	CGAGGUUU CUGAUGAG GCCGUUAGGC CGAA IAAGACCA	8738
2868	GGUCUUCC A AACCUCGA	1339	UCGAGGUU CUGAUGAG GCCGUUAGGC CGAA IGAAGACC	8739
2872	UUCCAAAC C UCGAAAAG	1340	CUUUUCGA CUGAUGAG GCCGUUAGGC CGAA IUUUGGAA	8740
2873	UCCAAACC U CGAAAAGG	1341	CCUUUUCG CUGAUGAG GCCGUUAGGC CGAA IGUUUGGA	8741
2883	GAAAAGGC A UGGGGACA	1342	UGUCCCCA CUGAUGAG GCCGUUAGGC CGAA ICCUUUUC	8742
2891	AUGGGGAC A AAUCUUUC	1343	GAAAGAUU CUGAUGAG GCCGUUAGGC CGAA IUCCCCAU	8743
2896	GACAAAUC U UUCUGUCC	1344	GGACAGAA CUGAUGAG GCCGUUAGGC CGAA IAUUUGUC	8744
2900	AAUCUUUC U GUCCCCAA	1345	UUGGGGAC CUGAUGAG GCCGUUAGGC CGAA IAAAGAUU	8745
2904	UUUCUGUC C CCAAUCCC	1346	GGGAUUGG CUGAUGAG GCCGUUAGGC CGAA IACAGAAA	8746
2905	UUCUGUCC C CAAUCCCC	1347	GGGGAUUG CUGAUGAG GCCGUUAGGC CGAA IGACAGAA	8747
2906	UCUGUCCC C AAUCCCCU	1348	AGGGGAUU CUGAUGAG GCCGUUAGGC CGAA IGGACAGA	
2907	CUGUCCCC A AUCCCCUG	1349	CAGGGGAU CUGAUGAG GCCGUUAGGC CGAA IGGGACAG	8748
2911	CCCCAAUC C CCUGGGAU	1350	AUCCCAGG CUGAUGAG GCCGUUAGGC CGAA IAUUGGGG	8749 8750
2912	CCCAAUCC C CUGGGAUU	1351	AAUCCCAG CUGAUGAG GCCGUUAGGC CGAA IGAUUGGG	
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2914	CAAUCCCC U GGGAUUCU	1352	AGAAUCCC CUGAUGAG GCCGUUAGGC CGAA IGGGAUUG	8752
2922	UGGGAUUC U UCCCCGAU	1354	AUCGGGGA CUGAUGAG GCCGUUAGGC CGAA IAAUCCCA	8753
2925	GAUUCUUC C CCGAUCAU		AUGAUCGG CUGAUGAG GCCGUUAGGC CGAA IAAGAAUC	8754
2926	AUUCUUCC C CGAUCAUC	1355	GAUGAUCG CUGAUGAG GCCGUUAGGC CGAA IGAAGAAU	8755
2927	UUCUUCCC C GAUCAUCA	1356	UGAUGAUC CUGAUGAG GCCGUUAGGC CGAA IGGAAGAA	8756
2932	CCCCGAUC A UCAGUUGG	1357	CCAACUGA CUGAUGAG GCCGUUAGGC CGAA IAUCGGGG	8757
2935	CGAUCAUC A GUUGGACC	1358	GGUCCAAC CUGAUGAG GCCGUUAGGC CGAA IAUGAUCG	8758
	CONSCINCT A GOOGGACC	1359	COOCCARC COGACGAG GCCGUUAGGC CGAA TAUGAUCG	8759

2943	AGUUGGAC C CUGCAUUC	1360	GAAUGCAG CUGAUGAG GCCGUUAGGC CGAA IUCCAACU	8760
2944	GUUGGACC C UGCAUUCA	1361	UGAAUGCA CUGAUGAG GCCGUUAGGC CGAA IGUCCAAC	8761
2945	UUGGACCC U GCAUUCAA	1362	UUGAAUGC CUGAUGAG GCCGUUAGGC CGAA IGGUCCAA	8762
2948	GACCCUGC A UUCAAAGC	1363	GCUUUGAA CUGAUGAG GCCGUUAGGC CGAA ICAGGGUC	8763
2952	CUGCAUUC A AAGCCAAC	1364	GUUGGCUU CUGAUGAG GCCGUUAGGC CGAA IAAUGCAG	8764
2957	UUCAAAGC C AACUCAGU	1365	ACUGAGUU CUGAUGAG GCCGUUAGGC CGAA ICUUUGAA	8765
2958	UCAAAGCC A ACUCAGUA	1366	UACUGAGU CUGAUGAG GCCGUUAGGC CGAA IGCUUUGA	8766
2961	AAGCCAAC U CAGUAAAU	1367	AUUUACUG CUGAUGAG GCCGUUAGGC CGAA IUUGGCUU	8767
2963	GCCAACUC A GUAAAUCC	1368	GGAUUUAC CUGAUGAG GCCGUUAGGC CGAA IAGUUGGC	8768
2971	AGUAAAUC C AGAUUGGG	1369	CCCAAUCU CUGAUGAG GCCGUUAGGC CGAA IAUUUACU	8769
2972	GUAAAUCC A GAUUGGGA	1370	UCCCAAUC CUGAUGAG GCCGUUAGGC CGAA IGAUUUAC	8770
2982	AUUGGGAC C UCAACCCG	1371	CGGGUUGA CUGAUGAG GCCGUUAGGC CGAA IUCCCAAU	8771
2983	UUGGGACC U CAACCCGC	1372	GCGGGUUG CUGAUGAG GCCGUUAGGC CGAA IGUCCCAA	8772
2985	GGGACCUC A ACCCGCAC	1373	GUGCGGGU CUGAUGAG GCCGUUAGGC CGAA IAGGUCCC	8773
2988	ACCUCAAC C CGCACAAG	1374	CUUGUGCG CUGAUGAG GCCGUUAGGC CGAA IUUGAGGU	8774
2989	CCUCAACC C GCACAAGG	1375	CCUUGUGC CUGAUGAG GCCGUUAGGC CGAA IGUUGAGG	8775
2992	CAACCCGC A CAAGGACA	1376	UGUCCUUG CUGAUGAG GCCGUUAGGC CGAA ICGGGUUG	8776
2994	ACCCGCAC A AGGACAAC	1377	GUUGUCCU CUGAUGAG GCCGUUAGGC CGAA IUGCGGGU	8777
3000	ACAAGGAC A ACUGGCCG	1378	CGGCCAGU CUGAUGAG GCCGUUAGGC CGAA IUCCUUGU	8778
3003	AGGACAAC U GGCCGGAC	1379	GUCCGGCC CUGAUGAG GCCGUUAGGC CGAA IUUGUCCU	8779
3007	CAACUGGC C GGACGCCA	1380	UGGCGUCC CUGAUGAG GCCGUUAGGC CGAA ICCAGUUG	8780
3014	CCGGACGC C AACAAGGU	1381	ACCUUGUU CUGAUGAG GCCGUUAGGC CGAA ICGUCCGG	8781
3015	CGGACGCC A ACAAGGUG	1382	CACCUUGU CUGAUGAG GCCGUUAGGC CGAA IGCGUCCG	8782
3018	ACGCCAAC A AGGUGGGA	1383	UCCCACCU CUGAUGAG GCCGUUAGGC CGAA IUUGGCGU	8783
3035	GUGGGAGC A UUCGGGCC	1384	GGCCCGAA CUGAUGAG GCCGUUAGGC CGAA ICUCCCAC	8784
3043	AUUCGGGC C AGGGUUCA	1385	UGAACCCU CUGAUGAG GCCGUUAGGC CGAA ICCCGAAU	8785
3044	UUCGGGCC A GGGUUCAC	1386	GUGAACCC CUGAUGAG GCCGUUAGGC CGAA IGCCCGAA	8786
3051	CAGGGUUC A CCCCUCCC	1387	GGGAGGGG CUGAUGAG GCCGUUAGGC CGAA IAACCCUG	8787
3053	GGGUUCAC C CCUCCCCA	1388	UGGGGAGG CUGAUGAG GCCGUUAGGC CGAA IUGAACCC	8788
3054	GGUUCACC C CUCCCCAU	1389	AUGGGGAG CUGAUGAG GCCGUUAGGC CGAA IGUGAACC	8789
3055	GUUCACCC C UCCCCAUG	1390	CAUGGGGA CUGAUGAG GCCGUUAGGC CGAA IGGUGAAC	8790
3056	UUCACCCC U CCCCAUGG	1391	CCAUGGGG CUGAUGAG GCCGUUAGGC CGAA IGGGUGAA	8791
3058	CACCCCUC C CCAUGGGG	1392	CCCCAUGG CUGAUGAG GCCGUUAGGC CGAA IAGGGGUG	8792
3059	ACCCCUCC C CAUGGGGG	1393	CCCCCAUG CUGAUGAG GCCGUUAGGC CGAA IGAGGGGU	8793
3060	CCCCUCCC C AUGGGGGA	1394	UCCCCCAU CUGAUGAG GCCGUUAGGC CGAA IGGAGGGG	8794
3061	CCCUCCCC A UGGGGGAC	1395	GUCCCCCA CUGAUGAG GCCGUUAGGC CGAA IGGGAGGG	8795
3070	UGGGGGAC U GUUGGGGU	1396	ACCCCAAC CUGAUGAG GCCGUUAGGC CGAA IUCCCCCA	8796
3084	GGUGGAGC C CUCACGCU	1397	AGCGUGAG CUGAUGAG GCCGUUAGGC CGAA ICUCCACC	8797
3085	GUGGAGCC C UCACGCUC	1398	GAGCGUGA CUGAUGAG GCCGUUAGGC CGAA IGCUCCAC	8798
3086	UGGAGCCC U CACGCUCA	1399	UGAGCGUG CUGAUGAG GCCGUUAGGC CGAA IGGCUCCA	8799
3088	GAGCCCUC A CGCUCAGG	1400	CCUGAGCG CUGAUGAG GCCGUUAGGC CGAA IAGGGCUC	8800
3092	CCUCACGC U CAGGGCCU	1401	AGGCCCUG CUGAUGAG GCCGUUAGGC CGAA ICGUGAGG	8801
3094	UCACGCUC A GGGCCUAC	1402	GUAGGCCC CUGAUGAG GCCGUUAGGC CGAA IAGCGUGA	8802
3099	CUCAGGGC C UACUCACA	1403	UGUGAGUA CUGAUGAG GCCGUUAGGC CGAA ICCCUGAG	8803
3100	UCAGGGCC U ACUCACAA	1404	UUGUGAGU CUGAUGAG GCCGUUAGGC CGAA IGCCCUGA	8804
3103	GGGCCUAC U CACAACUG	1405	CAGUUGUG CUGAUGAG GCCGUUAGGC CGAA IUAGGCCC	8805
3105	GCCUACUC A CAACUGUG	1406	CACAGUUG CUGAUGAG GCCGUUAGGC CGAA IAGUAGGC	
3107	CUACUCAC A ACUGUGCC	1407	GGCACAGU CUGAUGAG GCCGUUAGGC CGAA IUGAGUAG	8806
3110	CUCACAAC U GUGCCAGC	1408	GCUGGCAC CUGAUGAG GCCGUUAGGC CGAA IUUGUGAG	8807
3115	AACUGUGC C AGCAGCUC	1409	GAGCUGCU CUGAUGAG GCCGUUAGGC CGAA ICACAGUU	8808
3116	ACUGUGCC A GCAGCUCC	1410	GGAGCUGC CUGAUGAG GCCGUUAGGC CGAA IGCACAGU	8809
L		7410	THE TOTAL STREET STREET	8810

3119	GUGCCAGC A GCUCCUCC	1411	GGAGGAGC CUGAUGAG GCCGUUAGGC CGAA ICUGGCAC	0017
3122	CCAGCAGC U CCUCCUCC		GGAGGAGG CUGAUGAG GCCGUUAGGC CGAA ICUGCUGG	8811
3124	AGCAGCUC C UCCUCCUG	1412	CAGGAGGA CUGAUGAG GCCGUUAGGC CGAA IAGCUGCU	8812
3125	GCAGCUCC U CCUCCUGC	1413	GCAGGAGG CUGAUGAG GCCGUUAGGC CGAA IGAGCUGC	8813
3123	AGCUCCUC C UCCUGCCU	1414	AGGCAGGA CUGAUGAG GCCGUUAGGC CGAA IAGGAGCU	8814
	GCUCCUCC U CCUGCCUC	1415		8815
3128		1416	GAGGCAGG CUGAUGAG GCCGUUAGGC CGAA IGAGGAGC	8816
3130	UCCUCCUC C UGCCUCCA CCUCCUCC U GCCUCCAC	1417	UGGAGGCA CUGAUGAG GCCGUUAGGC CGAA IAGGAGGA GUGGAGGC CUGAUGAG GCCGUUAGGC CGAA IGAGGAGG	8817
3131	CCUCCUGC C UCCACCAA	1418	UUGGUGGA CUGAUGAG GCCGUUAGGC CGAA ICAGGAGG	8818
3134		1419		8819
3135	CUCCUGCC U CCACCAAU	1420	AUUGGUGG CUGAUGAG GCCGUUAGGC CGAA IGCAGGAG	8820
3137	CCUGCCUC C ACCAAUCG	1421	CGAUUGGU CUGAUGAG GCCGUUAGGC CGAA IAGGCAGG	8821
3138	CUGCCUCC A CCAAUCGG	1422	CCGAUUGG CUGAUGAG GCCGUUAGGC CGAA IGAGGCAG	8822
3140	GCCUCCAC C AAUCGGCA	1423	UGCCGAUU CUGAUGAG GCCGUUAGGC CGAA IUGGAGGC	8823
3141	CCUCCACC A AUCGGCAG	1424	CUGCCGAU CUGAUGAG GCCGUUAGGC CGAA IGUGGAGG	8824
3148	CAAUCGGC A GUCAGGAA	1425	UUCCUGAC CUGAUGAG GCCGUUAGGC CGAA ICCGAUUG	8825
3152	CGGCAGUC A GGAAGGCA	1426	UGCCUUCC CUGAUGAG GCCGUUAGGC CGAA IACUGCCG	8826
3160	AGGAAGGC A GCCUACUC	1427	GAGUAGGC CUGAUGAG GCCGUUAGGC CGAA ICCUUCCU	8827
3163	AAGGCAGC C UACUCCCU	1428	AGGGAGUA CUGAUGAG GCCGUUAGGC CGAA ICUGCCUU	8828
3164	AGGCAGCC U ACUCCCUU	1429	AAGGGAGU CUGAUGAG GCCGUUAGGC CGAA IGCUGCCU	8829
3167	CAGCCUAC U CCCUUAUC	1430	GAUAAGGG CUGAUGAG GCCGUUAGGC CGAA IUAGGCUG	8830
3169	GCCUACUC C CUUAUCUC	1431	GAGAUAAG CUGAUGAG GCCGUUAGGC CGAA IAGUAGGC	8831
3170	CCUACUCC C UUAUCUCC	1432	GGAGAUAA CUGAUGAG GCCGUUAGGC CGAA IGAGUAGG	8832
3171	CUACUCCC U UAUCUCCA	1433	UGGAGAUA CUGAUGAG GCCGUUAGGC CGAA IGGAGUAG	8833
3176	CCCUUAUC U CCACCUCU	1434	AGAGGUGG CUGAUGAG GCCGUUAGGC CGAA IAUAAGGG	8834
3178	CUUAUCUC C ACCUCUAA	1435	UUAGAGGU CUGAUGAG GCCGUUAGGC CGAA IAGAUAAG	8835
3179	UUAUCUCC A CCUCUAAG	1436	CUUAGAGG CUGAUGAG GCCGUUAGGC CGAA IGAGAUAA	8836
3181	AUCUCCAC C UCUAAGGG	1437	CCCUUAGA CUGAUGAG GCCGUUAGGC CGAA IUGGAGAU	8837
3182	UCUCCACC U CUAAGGGA	1438	UCCCUUAG CUGAUGAG GCCGUUAGGC CGAA IGUGGAGA	8838
3184	UCCACCUC U AAGGGACA	1439	UGUCCCUU CUGAUGAG GCCGUUAGGC CGAA IAGGUGGA	8839
3192	UAAGGGAC A CUCAUCCU	1440	AGGAUGAG CUGAUGAG GCCGUUAGGC CGAA IUCCCUUA	8840
3194	AGGGACAC U CAUCCUCA	1441	UGAGGAUG CUGAUGAG GCCGUUAGGC CGAA IUGUCCCU	8841
3196	GGACACUC A UCCUCAGG	1442	CCUGAGGA CUGAUGAG GCCGUUAGGC CGAA IAGUGUCC	8842
3199	CACUCAUC C UCAGGCCA	1443	UGGCCUGA CUGAUGAG GCCGUUAGGC CGAA IAUGAGUG	8843
3200	ACUCAUCC U CAGGCCAU	1444	AUGGCCUG CUGAUGAG GCCGUUAGGC CGAA IGAUGAGU	8844
3202	UCAUCCUC A GGCCAUGC	1445	GCAUGGCC CUGAUGAG GCCGUUAGGC CGAA IAGGAUGA	8845
3206	CCUCAGGC C AUGCAGUG	1446	CACUGCAU CUGAUGAG GCCGUUAGGC CGAA ICCUGAGG	8846
3207	CUCAGGCC A UGCAGUGG	1447	CCACUGCA CUGAUGAG GCCGUUAGGC CGAA IGCCUGAG	8847
L	L			1011

Input Sequence = AF100308. Cut Site = CH/.
Stem Length = 8 . Core Sequence = CUGAUGAG X CGAA (X = GCCGUUAGGC or other stem II)
AF100308 (Hepatitis B virus strain 2-18, 3215 bp)

Underlined region can be any X sequence or linker, as described herein. "I" stands for Inosime

TABLE VII: HUMAN HBV G-CLEAVER AND SUBSTRATE SEQUENCE

Pos	Substrate	Seq ID	G-cleaver	Seq ID
61	ACUUUCCU G CUGGUGGC	1448	GCCACCAG UGAUG GCAUGCACUAUGC GCG AGGAAAGU	8848
87	GGAACAGU G AGCCCUGC	1449	GCAGGGCU UGAUG GCAUGCACUAUGC GCG ACUGUUCC	8849
94	UGAGCCCU G CUCAGAAU	1450	AUUCUGAG UGAUG GCAUGCACUAUGC GCG AGGGCUCA	8850
112	CUGUCUCU G CCAUAUCG	1451	CGAUAUGG UGAUG GCAUGCACUAUGC GCG AGAGACAG	8851
132	AUCUUAUC G AAGACUGG	1452	CCAGUCUU UGAUG GCAUGCACUAUGC GCG GAUAAGAU	8852
153	CCUGUACC G AACAUGGA	1453	UCCAUGUU UGAUG GCAUGCACUAUGC GCG GGUACAGG	8853
169	AGAACAUC G CAUCAGGA	1454	UCCUGAUG UGAUG GCAUGCACUAUGC GCG GAUGUUCU	8854
192	GGACCCCU G CUCGUGUU	1455	AACACGAG UGAUG GCAUGCACUAUGC GCG AGGGGUCC	8855
222	UUCUUGUU G ACAAAAU	1456	AUUUUUGU UGAUG GCAUGCACUAUGC GCG AACAAGAA	8856
315	CAAAAUUC G CAGUCCCA	1457	UGGGACUG UGAUG GCAUGCACUAUGC GCG GAAUUUUG	8857
374	UGGUUAUC G CUGGAUGU	1458	ACAUCCAG UGAUG GCAUGCACUAUGC GCG GAUAACCA	8858
387	AUGUGUCU G CGGCGUUU	1459	AAACGCCG UGAUG GCAUGCACUAUGC GCG AGACACAU	8859
410	CUUCCUCU G CAUCCUGC	1460	GCAGGAUG UGAUG GCAUGCACUAUGC GCG AGAGGAAG	8860
417	UGCAUCCU G CUGCUAUG	1461	CAUAGCAG UGAUG GCAUGCACUAUGC GCG AGGAUGCA	8861
420	AUCCUGCU G CUAUGCCU	1462	AGGCAUAG UGAUG GCAUGCACUAUGC GCG AGCAGGAU	8862
425	GCUGCUAU G CCUCAUCU	1463	AGAUGAGG UGAUG GCAUGCACUAUGC GCG AUAGCAGC	8863
468	GGUAUGUU G CCCGUUUG	1464	CAAACGGG UGAUG GCAUGCACUAUGC GCG AACAUACC	8864
518	CGGACCAU G CAAAACCU	1465	AGGUUUUG UGAUG GCAUGCACUAUGC GCG AUGGUCCG	8865
527	CAAAACCU G CACAACUC	1466	GAGUUGUG UGAUG GCAUGCACUAUGC GCG AGGUUUUG	8866
538	CAACUCCU G CUCAAGGA	1467	UCCUUGAG UGAUG GCAUGCACUAUGC GCG AGGAGUUG	8867
569	CUCAUGUU G CUGUACAA	1468	UUGUACAG UGAUG GCAUGCACUAUGC GCG AACAUGAG	8868
596	CGGAAACU G CACCUGUA	1469	UACAGGUG UGAUG GCAUGCACUAUGC GCG AGUUUCCG	8869
631	GGGCUUUC G CAAAAUAC	1470	GUAUUUUG UGAUG GCAUGCACUAUGC GCG GAAAGCCC	8870
687	UUACUAGU G CCAUUUGU	1471	ACAAAUGG UGAUG GCAUGCACUAUGC GCG ACUAGUAA	8871
747	AUAUGGAU G AUGUGGUU	1472	AACCACAU UGAUG GCAUGCACUAUGC GCG AUCCAUAU	8872
783	AACAUCUU G AGUCCCUU	1473	AAGGGACU UGAUG GCAUGCACUAUGC GCG AAGAUGUU	8873
795	CCCUUUAU G CCGCUGUU	1474	AACAGCGG UGAUG GCAUGCACUAUGC GCG AUAAAGGG	8874
798	UUUAUGCC G CUGUUACC	1475	GGUAACAG UGAUG GCAUGCACUAUGC GCG GGCAUAAA	8875
911	GGCACAUU G CCACAGGA	1476	UCCUGUGG UGAUG GCAUGCACUAUGC GCG AAUGUGCC	8876
978	GGCCUAUU G AUUGGAAA	1477	UUUCCAAU UGAUG GCAUGCACUAUGC GCG AAUAGGCC	8877
997	AUGUCAAC G AAUUGUGG	1478	CCACAAUU UGAUG GCAUGCACUAUGC GCG GUUGACAU	8878
1020	negegnnn e ccecccan	1479	AGGGGCGG UGAUG GCAUGCACUAUGC GCG AAACCCCA	8879
1023	GGUUUGCC G CCCCUUUC	1480	GAAAGGGG UGAUG GCAUGCACUAUGC GCG GGCAAACC	8880
1034	CCUUUCAC G CAAUGUGG	1481	CCACAUUG UGAUG GCAUGCACUAUGC GCG GUGAAAGG	8881
1050	GAUAUUCU G CUUUAAUG	1482	CAUUAAAG UGAUG GCAUGCACUAUGC GCG AGAAUAUC	8882
1058	GCUUUAAU G CCUUUAUA	1483	UAUAAAGG UGAUG GCAUGCACUAUGC GCG AUUAAAGC	8883
1068	CUUUAUAU G CAUGCAUA	1484	UAUGCAUG UGAUG GCAUGCACUAUGC GCG AUAUAAAG	8884
1072	AUAUGCAU G CAUACAAG	1485	CUUGUAUG UGAUG GCAUGCACUAUGC GCG AUGCAUAU	8885
1103	ACUUUCUC G CCAACUUA	1486	UAAGUUGG UGAUG GCAUGCACUAUGC GCG GAGAAAGU	8886
1139	CAGUAUGU G AACCUUUA	1487	UAAAGGUU UGAUG GCAUGCACUAUGC GCG ACAUACUG	8887
1155	ACCCCGUU G CUCGGCAA	1488	UUGCCGAG UGAUG GCAUGCACUAUGC GCG AACGGGGU	8888
1177	UGGUCUAU G CCAAGUGU	1489	ACACUUGG UGAUG GCAUGCACUAUGC GCG AUAGACCA	8889
1188	AAGUGUUU G CUGACGCA	1490	UGCGUCAG UGAUG GCAUGCACUAUGC GCG AAACACUU	8890
1191	UGUUUGCU G ACGCAACC	1491	GGUUGCGU UGAUG GCAUGCACUAUGC GCG AGCAAACA	8891
1194	UUGCUGAC G CAACCCCC	1492	GGGGGUUG UGAUG GCAUGCACUAUGC GCG GUCAGCAA	8892
1234	CCAUCAGC G CAUGCGUG	1493	CACGCAUG UGAUG GCAUGCACUAUGC GCG GCUGAUGG	8893
1238	CAGCGCAU G CGUGGAAC	1494	GUUCCACG UGAUG GCAUGCACUAUGC GCG AUGCGCUG	8894

1200	HOLOGUEL C CCCALCCA		UGGAUCGG UGAUG GCAUGCACUAUGC GCG AGAGGAGA	
1262	UCUCCUCU G CCGAUCCA CCUCUGCC G AUCCAUAC	1495	GUAUGGAU UGAUG GCAUGCACUAUGC GCG AGAGGAGA GUAUGGAU UGAUG GCAUGCACUAUGC GCG GGCAGAGG	8895
1265		1496	GAGUUCCG UGAUG GCAUGCACUAUGC GCG GGUAUGGA	8896
1275	UCCAUACC G CGGAACUC	1497	AAAACAAG UGAUG GCAUGCACUAUGC GCG GGCUAGGA	8897
1290	UCCUAGCC G CUUGUUUU	1498	GCUGCGAG UGAUG GCAUGCACUAUGC GCG GACAACAAG	8898
1299	CUUGUUUU G CUCGCAGC	1499		8899
1303	UUUUGCUC G CAGCAGGU	1500	ACCUGCUG UGAUG GCAUGCACUAUGC GCG GAGCAAAA	8900
1335	UCGGGACU G ACAAUUCU	1501	AGAAUUGU UGAUG GCAUGCACUAUGC GCG AGUCCCGA	8901
1349	UCUGUCGU G CUCUCCCG	1502	CGGGAGAG UGAUG GCAUGCACUAUGC GCG ACGACAGA	8902
1357	GCUCUCCC G CAAAUAUA	1503	UAUAUUUG UGAUG GCAUGCACUAUGC GCG GGGAGAGC	8903
1382	CCAUGGCU G CUAGGCUG	1504	CAGCCUAG UGAUG GCAUGCACUAUGC GCG AGCCAUGG	8904
1392	UAGGCUGU G CUGCCAAC	1505	GUUGGCAG UGAUG GCAUGCACUAUGC GCG ACAGCCUA	8905
1395	GCUGUGCU G CCAACUGG	1506	CCAGUUGG UGAUG GCAUGCACUAUGC GCG AGCACAGC	8906
1411	GAUCCUAC G CGGGACGU	1507	ACGUCCCG UGAUG GCAUGCACUAUGC GCG GUAGGAUC	8907
1442	CCGUCGGC G CUGAAUCC	1508	GGAUUCAG UGAUG GCAUGCACUAUGC GCG GCCGACGG	8908
1445	UCGGCGCU G AAUCCCGC	1509	GCGGGAUU UGAUG GCAUGCACUAUGC GCG AGCGCCGA	8909
1452	UGAAUCCC G CGGACGAC	1510	GUCGUCCG UGAUG GCAUGCACUAUGC GCG GGGAUUCA	8910
1458	CCGCGGAC G ACCCCUCC	1511	GGAGGGGU UGAUG GCAUGCACUAUGC GCG GUCCGCGG	8911
1474	CCGGGGCC G CUUGGGGC	1512	GCCCCAAG UGAUG GCAUGCACUAUGC GCG GGCCCCGG	8912
1489	GCUCUACC G CCCGCUUC	1513	GAAGCGGG UGAUG GCAUGCACUAUGC GCG GGUAGAGC	8913
1493	UACCGCCC G CUUCUCCG	1514	CGGAGAAG UGAUG GCAUGCACUAUGC GCG GGGCGGUA	8914
1501	GCUUCUCC G CCUAUUGU	1515	ACAAUAGG UGAUG GCAUGCACUAUGC GCG GGAGAAGC	8915
1513	AUUGUACC G ACCGUCCA	1516	UGGACGGU UGAUG GCAUGCACUAUGC GCG GGUACAAU	8916
1528	CACGGGGC G CACCUCUC	1517	GAGAGGUG UGAUG GCAUGCACUAUGC GCG GCCCCGUG	8917
1542	CUCUUUAC G CGGACUCC	1518	GGAGUCCG UGAUG GCAUGCACUAUGC GCG GUAAAGAG	8918
1559	CCGUCUGU G CCUUCUCA	1519	UGAGAAGG UGAUG GCAUGCACUAUGC GCG ACAGACGG	8919
1571	UCUCAUCU G CCGGACCG	1520	CGGUCCGG UGAUG GCAUGCACUAUGC GCG AGAUGAGA	8920
1583	GACCGUGU G CACUUCGC	1521	GCGAAGUG UGAUG GCAUGCACUAUGC GCG ACACGGUC	8921
1590	UGCACUUC G CUUCACCU	1522	AGGUGAAG UGAUG GCAUGCACUAUGC GCG GAAGUGCA	8922
1601	UCACCUCU G CACGUCGC	1523	GCGACGUG UGAUG GCAUGCACUAUGC GCG AGAGGUGA	8923
1608	UGCACGUC G CAUGGAGA	1524	UCUCCAUG UGAUG GCAUGCACUAUGC GCG GACGUGCA	8924
1624	ACCACCGU G AACGCCCA	1525	UGGGCGUU UGAUG GCAUGCACUAUGC GCG ACGGUGGU	8925
1628	CCGUGAAC G CCCACAGG	1526	CCUGUGGG UGAUG GCAUGCACUAUGC GCG GUUCACGG	8926
1642	AGGAACCU G CCCAAGGU	1527	ACCUUGGG UGAUG GCAUGCACUAUGC GCG AGGUUCCU	8927
1654	AAGGUCUU G CAUAAGAG	1528	CUCUUAUG UGAUG GCAUGCACUAUGC GCG AAGACCUU	8928
1690	AUGUCAAC G ACCGACCU	1529	AGGUCGGU UGAUG GCAUGCACUAUGC GCG GUUGACAU	8929
1694	CAACGACC G ACCUUGAG	1530	CUCAAGGU UGAUG GCAUGCACUAUGC GCG GGUCGUUG	8930
1700	CCGACCUU G AGGCAUAC	1531	GUAUGCCU UGAUG GCAUGCACUAUGC GCG AAGGUCGG	8931
1730	UGUUUAAU G AGUGGGAG	1532	CUCCCACU UGAUG GCAUGCACUAUGC GCG AUUAAACA	8932
1818	AGCACCAU G CAACUUUU	1533	AAAAGUUG UGAUG GCAUGCACUAUGC GCG AUGGUGCU	8933
1835	UCACCUCU G CCUAAUCA	1534	UGAUUAGG UGAUG GCAUGCACUAUGC GCG AGAGGUGA	8934
1883	CAAGCUGU G CCUUGGGU	1535	ACCCAAGG UGAUG GCAUGCACUAUGC GCG ACAGCUUG	8935
1912	UGGACAUU G ACCCGUAU	1536	AUACGGGU UGAUG GCAUGCACUAUGC GCG AAUGUCCA	8936
1959	UCUUUUUU G CCUUCUGA	1537	UCAGAAGG UGAUG GCAUGCACUAUGC GCG AAAAAAGA	8937
1966	UGCCUUCU G ACUUCUUU	1538	AAAGAAGU UGAUG GCAUGCACUAUGC GCG AGAAGGCA	8938
1985	UUCUAUUC G AGAUCUCC	1539	GGAGAUCU UGAUG GCAUGCACUAUGC GCG GAAUAGAA	8939
1996	AUCUCCUC G ACACCGCC	1540	GGCGGUGU UGAUG GCAUGCACUAUGC GCG GAGGAGAU	8940
2002	UCGACACC G CCUCUGCU	1541	AGCAGAGG UGAUG GCAUGCACUAUGC GCG GGUGUCGA	8941
2008	CCGCCUCU G CUCUGUAU	1542	AUACAGAG UGAUG GCAUGCACUAUGC GCG AGAGGCGG	8942
2092	GUUGGGGU G AGUUGAUG	1543	CAUCAACU UGAUG GCAUGCACUAUGC GCG ACCCCAAC	8943
2097	GGUGAGUU G AUGAAUCU	1544	AGAUUCAU UGAUG GCAUGCACUAUGC GCG AACUCACC	8944
2100	GAGUUGAU G AAUCUAGC	1545	GCUAGAUU UGAUG GCAUGCACUAUGC GCG AUCAACUC	8945

2237	UUUUGGGC G AGAAACUG	1546	CAGUUUCU UGAUG GCAUGCACUAUGC GCG GCCCAAAA	8946
2251	CUGUUCUU G AAUAUUUG	1547	CAAAUAUU UGAUG GCAUGCACUAUGC GCG AAGAACAG	8947
2282	GUGGAUUC G CACUCCUC	1548	GAGGAGUG UGAUG GCAUGCACUAUGC GCG GAAUCCAC	8948
2293	CUCCUCCU G CAUAUAGA	1549	UCUAUAUG UGAUG GCAUGCACUAUGC GCG AGGAGGAG	8949
2311	CACCAAAU G CCCCUAUC	1550	GAUAGGGG UGAUG GCAUGCACUAUGC GCG AUUUGGUG	8950
2354	UGUUAGAC G AAGAGGCA	1551	UGCCUCUU UGAUG GCAUGCACUAUGC GCG GUCUAACA	8951
2388	ACUCCCUC G CCUCGCAG	1552	CUGCGAGG UGAUG GCAUGCACUAUGC GCG GAGGGAGU	8952
2393	CUCGCCUC G CAGACGAA	1553	UUCGUCUG UGAUG GCAUGCACUAUGC GCG GAGGCGAG	
2399	UCGCAGAC G AAGGUCUC	1554	GAGACCUU UGAUG GCAUGCACUAUGC GCG GUCUGCGA	8953 8954
2412	UCUCAAUC G CCGCGUCG	1555	CGACGCGG UGAUG GCAUGCACUAUGC GCG GAUUGAGA	
2415	CAAUCGCC G CGUCGCAG	1556	CUGCGACG UGAUG GCAUGCACUAUGC GCG GGCGAUUG	8955
2420	GCCGCGUC G CAGAAGAU		AUCUUCUG UGAUG GCAUGCACUAUGC GCG GACGCGGC	8956
2514	GGUACCUU G CUUUAAUC	1557	GAUUAAAG UGAUG GCAUGCACUAUGC GCG AAGGUACC	8957
2549	CUUUUCCU G ACAUUCAU	1558	AUGAAUGU UGAUG GCAUGCACUAUGC GCG AGGAAAAG	8958
2560	AUUCAUUU G CAGGAGGA	1559	UCCUCCUG UGAUG GCAUGCACUAUGC GCG AAAUGAAU	8959
2576	ACAUUGUU G AUAGAUGU	1560	ACAUCUAU UGAUG GCAUGCACUAUGC GCG AACAAUGU	8960
2615	CAGUAAAU G AAAACAGG	1561	CCUGUUUU UGAUG GCAUGCACUAUGC GCG AUUUACUG	8961
2641	UUAACUAU G CCUGCUAG	1562	CUAGCAGG UGAUG GCAUGCACUAUGC GCG AUAGUUAA	8962
2645	CUAUGCCU G CUAGGUUU	1563	AAACCUAG UGAUG GCAUGCACUAUGC GCG AGGCAUAG	8963
2677	AAAUAUUU G CCCUUAGA	1564	UCUAAGGG UGAUG GCAUGCACUAUGC GCG AAAUAUUU	8964
2740	UUCCAGAC G CGACAUUA	1565	UAAUGUCG UGAUG GCAUGCACUAUGC GCG GUCUGGAA	8965
2742	CCAGACGC G ACAUUAUU	1566	AAUAAUGU UGAUG GCAUGCACUAUGC GCG GCGUCUGG	8966
2804	CACGUAGC G CCUCAUUU	1567	AAAUGAGG UGAUG GCAUGCACUAUGC GCG GCUACGUG	8967
2814	CUCAUUUU G CGGGUCAC	1568	GUGACCCG UGAUG GCAUGCACUAUGC GCG AAAAUGAG	8968
2875	CAAACCUC G AAAAGGCA	1569	UGCCUUUU UGAUG GCAUGCACUAUGC GCG AAAAUGAG UGCCUUUU UGAUG GCAUGCACUAUGC GCG GAGGUUUG	8969
2928	UCUUCCCC G AUCAUCAG	1570	CUGAUGAU UGAUG GCAUGCACUAUGC GCG GGGGAAGA	8970
2946	UGGACCCU G CAUUCAAA	1571	UUUGAAUG UGAUG GCAUGCACUAUGC GCG AGGGUCCA	8971
2990	CUCAACCC G CACAAGGA	1572	UCCUUGUG UGAUG GCAUGCACUAUGC GCG GGGUUGAG	8972
3012	GGCCGGAC G CCAACAAG	1573	CUUGUUGG UGAUG GCAUGCACUAUGC GCG GUCCGGCC	8973
3090	GCCCUCAC G CUCAGGGC	1574	GCCCUGAG UGAUG GCAUGCACUAUGC GCG GUGAGGGC	8974
3113	ACAACUGU G CCAGCAGC	1575	GCUGCUGG UGAUG GCAUGCACUAUGC GCG ACAGUUGU	8975
3132	CUCCUCCU G CCUCCACC	1576	GGUGGAGG UGAUG GCAUGCACUAUGC GCG AGGAGGAG	8976
51	AGGGCCCU G UACUUUCC	1577	GGAAAGUA UGAUG GCAUGCACUAUGC GCG AGGGCCCU	8977
106	AGAAUACU G UCUCUGCC	1578	GGCAGAGA UGAUG GCAUGCACUAUGC GCG AGUAUUCU	8978
148	GGGACCCU G UACCGAAC	1579	GUUCGGUA UGAUG GCAUGCACUAUGC GCG AGGGUCCC	8979
198	CUGCUCGU G UUACAGGC	1580	GCCUGUAA UGAUG GCAUGCACUAUGC GCG ACGAGCAG	8980
219	UUUUUCUU G UUGACAAA	1581	UUUGUCAA UGAUG GCAUGCACUAUGC GCG AAGAAAAA	8981
297	ACACCCGU G UGUCUUGG	1582	CCAAGACA UGAUG GCAUGCACUAUGC GCG ACGGGUGU	8982
299	ACCCGUGU G UCUUGGCC	1583	GGCCAAGA UGAUG GCAUGCACUAUGC GCG ACACGGGU	8983
347	ACCAACCU G UUGUCCUC	1584	GAGGACAA UGAUG GCAUGCACUAUGC GCG AGGUUGGU	8984
350	AACCUGUU G UCCUCCAA	1585	UUGGAGGA UGAUG GCAUGCACUAUGC GCG AACAGGUU	8985
362	UCCAAUUU G UCCUGGUU	1586	AACCAGGA UGAUG GCAUGCACUAUGC GCG AAAUUGGA	8986
381	CGCUGGAU G UGUCUGCG	1587	CGCAGACA UGAUG GCAUGCACUAUGC GCG AUCCAGCG	8987
383	CUGGAUGU G UCUGCGGC	1588	GCCGCAGA UGAUG GCAUGCACUAUGC GCG ACAUCCAG	8988
438	AUCUUCUU G UUGGUUCU	1589 1590	AGAACCAA UGAUG GCAUGCACUAUGC GCG AAGAAGAU	8989
465	CAAGGUAU G UUGCCCGU		ACGGGCAA UGAUG GCAUGCACUAUGC GCG AUACCUUG	8990
476	GCCCGUUU G UCCUCUAA	1591	UUAGAGGA UGAUG GCAUGCACUAUGC GCG AAACGGGC	8991
555	ACCUCUAU G UUUCCCUC	1592	GAGGGAAA UGAUG GCAUGCACUAUGC GCG AUAGAGGU	8992
566	UCCCUCAU G UUGCUGUA	1593	UACAGCAA UGAUG GCAUGCACUAUGC GCG AUGAGGGA	8993
572	AUGUUGCU G UACAAAAC	1594	GUUUUGUA UGAUG GCAUGCACUAUGC GCG AGCAACAU	8994
602	CUGCACCU G UAUUCCCA	1595	UGGGAAUA UGAUG GCAUGCACUAUGC GCG AGGUGCAG	8995
302	COGGREGO O OROUCCEA	1596	COCCARON CONCO GCACGACUAUGC GCG AGGUGCAG	8996

C04 1	UGCCAUUU G UUCAGUGG		CCACUGAA UGAUG GCAUGCACUAUGC GCG AAAUGGCA	2007
694	CCCCCACU G UCUGGCUU	1597	AAGCCAGA UGAUG GCAUGCACUAUGC GCG AGUGGGGG	8997
724	UGGAUGAU G UGGUUUUG	1598	CAAAACCA UGAUG GCAUGCACUAUGC GCG AUCAUCCA	8998
750	CCAAGUCU G UACAACAU	1599	AUGUUGUA UGAUG GCAUGCACUAUGC GCG AGACUUGG	8999
	AUGCCGCU G UUACCAAU	1600	AUUGGUAA UGAUG GCAUGCACUAUGC GCG AGCGGCAU	9000
801		1601	CCCAAAGA UGAUG GCAUGCACUAUGC GCG AAAAGAAA	9001
818	UUUCUUUU G UCUUUGGG	1602	CCCAAUUA UGAUG GCAUGCACUAUGC GCG AUAUCCCA	9002
888	UGGGAUAU G UAAUUGGG	1603		9003
927	AACAUAUU G UACAAAAA	1604	UUUUUGUA UGAUG GCAUGCACUAUGC GCG AAUAUGUU	9004
944	AUCAAAAU G UGUUUUAG	1605	CUAAAACA UGAUG GCAUGCACUAUGC GCG AUUUUGAU	9005
946	CAAAAUGU G UUUUAGGA	1606	UCCUAAAA UGAUG GCAUGCACUAUGC GCG ACAUUUUG	9006
963	AACUUCCU G UAAACAGG	1607	CCUGUUUA UGAUG GCAUGCACUAUGC GCG AGGAAGUU	9007
991	GAAAGUAU G UCAACGAA	1608	UUCGUUGA UGAUG GCAUGCACUAUGC GCG AUACUUUC	9008
1002	AACGAAUU G UGGGUCUU	1609	AAGACCCA UGAUG GCAUGCACUAUGC GCG AAUUCGUU	9009
1039	CACGCAAU G UGGAUAUU	1610	AAUAUCCA UGAUG GCAUGCACUAUGC GCG AUUGCGUG	9010
1137	AACAGUAU G UGAACCUU	1611	AAGGUUCA UGAUG GCAUGCACUAUGC GCG AUACUGUU	9011
1184	UGCCAAGU G UUUGCUGA	1612	UCAGCAAA UGAUG GCAUGCACUAUGC GCG ACUUGGCA	9012
1251	GAACCUUU G UGUCUCCU	1613	AGGAGACA UGAUG GCAUGCACUAUGC GCG AAAGGUUC	9013
1253	ACCUUUGU G UCUCCUCU	1614	AGAGGAGA UGAUG GCAUGCACUAUGC GCG ACAAAGGU	9014
1294	AGCCGCUU G UUUUGCUC	1615	GAGCAAAA UGAUG GCAUGCACUAUGC GCG AAGCGGCU	9015
1344	ACAAUUCU G UCGUGCUC	1616	GAGCACGA UGAUG GCAUGCACUAUGC GCG AGAAUUGU	9016
1390	GCUAGGCU G UGCUGCCA	1617	UGGCAGCA UGAUG GCAUGCACUAUGC GCG AGCCUAGC	9017
1425	CGUCCUUU G UUUACGUC	1618	GACGUAAA UGAUG GCAUGCACUAUGC GCG AAAGGACG	9018
1508	CGCCUAUU G UACCGACC	1619	GGUCGGUA UGAUG GCAUGCACUAUGC GCG AAUAGGCG	9019
1557	CCCCGUCU G UGCCUUCU	1620	AGAAGGCA UGAUG GCAUGCACUAUGC GCG AGACGGGG	9020
1581	CGGACCGU G UGCACUUC	1621	GAAGUGCA UGAUG GCAUGCACUAUGC GCG ACGGUCCG	9021
1684	UCAGCAAU G UCAACGAC	1622	GUCGUUGA UGAUG GCAUGCACUAUGC GCG AUUGCUGA	9022
1719	CAAAGACU G UGUGUUUA	1623	UAAACACA UGAUG GCAUGCACUAUGC GCG AGUCUUUG	9023
1721	AAGACUGU G UGUUUAAU	1624	AUUAAACA UGAUG GCAUGCACUAUGC GCG ACAGUCUU	9024
1723	GACUGUGU G UUUAAUGA	1625	UCAUUAAA UGAUG GCAUGCACUAUGC GCG ACACAGUC	9025
1772	AGGUCUUU G UACUAGGA	1626	UCCUAGUA UGAUG GCAUGCACUAUGC GCG AAAGACCU	9026
1785	AGGAGGCU G UAGGCAUA	1627	UAUGCCUA UGAUG GCAUGCACUAUGC GCG AGCCUCCU	9027
1801	AAAUUGGU G UGUUCACC	1628	GGUGAACA UGAUG GCAUGCACUAUGC GCG ACCAAUUU	9028
1803	AUUGGUGU G UUCACCAG	1629	CUGGUGAA UGAUG GCAUGCACUAUGC GCG ACACCAAU	9029
1850	CAUCUCAU G UUCAUGUC	1630	GACAUGAA UGAUG GCAUGCACUAUGC GCG AUGAGAUG	9030
1856	AUGUUCAU G UCCUACUG	1631	CAGUAGGA UGAUG GCAUGCACUAUGC GCG AUGAACAU	9031
1864	GUCCUACU G UUCAAGCC	1632	GGCUUGAA UGAUG GCAUGCACUAUGC GCG AGUAGGAC	9032
1881	UCCAAGCU G UGCCUUGG	1633	CCAAGGCA UGAUG GCAUGCACUAUGC GCG AGCUUGGA	9033
1939	GAGCUUCU G UGGAGUUA	1634	UAACUCCA UGAUG GCAUGCACUAUGC GCG AGAAGCUC	9034
2013	UCUGCUCU G UAUCGGGG	1635	CCCCGAUA UGAUG GCAUGCACUAUGC GCG AGAGCAGA	9035
2045	GGAACAUU G UUCACCUC	1636	GAGGUGAA UGAUG GCAUGCACUAUGC GCG AAUGUUCC	9036
2082	GCUAUUCU G UGUUGGGG	1637	CCCCAACA UGAUG GCAUGCACUAUGC GCG AGAAUAGC	9037
2084	UAUUCUGU G UUGGGGUG	1638	CACCCCAA UGAUG GCAUGCACUAUGC GCG ACAGAAUA	9038
2167	UCAGCUAU G UCAACGUU	1639	AACGUUGA UGAUG GCAUGCACUAUGC GCG AUAGCUGA	9039
2205	CAACUAUU G UGGUUUCA	1640	UGAAACCA UGAUG GCAUGCACUAUGC GCG AAUAGUUG	9040
2222	CAUUUCCU G UCUUACUU	1641	AAGUAAGA UGAUG GCAUGCACUAUGC GCG AGGAAAUG	9041
2245	GAGAAACU G UUCUUGAA	1642	UUCAAGAA UGAUG GCAUGCACUAUGC GCG AGUUUCUC	9042
2262	UAUUUGGU G UCUUUUGG	1643,	CCAAAAGA UGAUG GCAUGCACUAUGC GCG ACCAAAUA	9043
2274	UUUGGAGU G UGGAUUCG	1644	CGAAUCCA UGAUG GCAUGCACUAUGC GCG ACUCCAAA	9044
2344	AAACUACU G UUGUUAGA	1645	UCUAACAA UGAUG GCAUGCACUAUGC GCG AGUAGUUU	9045
2347	CUACUGUU G UUAGACGA	1646	UCGUCUAA UGAUG GCAUGCACUAUGC GCG AACAGUAG	9046
2450	AUCUCAAU G UUAGUAUU		AAUACUAA UGAUG GCAUGCACUAUGC GCG AUUGAGAU	
2130	110000.110 0 00000000	1647	THE THE SELECT SELECTION OF GUY HUUGHGAU	9047

2573	AGGACAUU G UUGAUAGA	1648	UCUAUCAA UGAUG GCAUGCACUAUGC GCG AAUGUCCU	9048
2583	UGAUAGAU G UAAGCAAU	1649	AUUGCUUA UGAUG GCAUGCACUAUGC GCG AUCUAUCA	9049
2594	AGCAAUUU G UGGGGCCC	1650	GGGCCCCA UGAUG GCAUGCACUAUGC GCG AAAUUGCU	9050
2663	AUCCCAAU G UUACUAAA	1651	UUUAGUAA UGAUG GCAUGCACUAUGC GCG AUUGGGAU	9051
2717	CAGAGUAU G UAGUUAAU	1652	AUUAACUA UGAUG GCAUGCACUAUGC GCG AUACUCUG	9052
2901	AUCUUUCU G UCCCCAAU	1653	AUUGGGGA UGAUG GCAUGCACUAUGC GCG AGAAAGAU	9053
3071	GGGGGACU G UUGGGGUG	1654	CACCCCAA UGAUG GCAUGCACUAUGC GCG AGUCCCCC	9054
3111	UCACAACU G UGCCAGCA	1655	UGCUGGCA UGAUG GCAUGCACUAUGC GCG AGUUGUGA	9055

Input Sequence = AF100308. Cut Site = YG/M or UG/U.
Stem Length = 8. Core Sequence = UGAUG GCAUGCACUAUGC GCG
AF100308 (Hepatitis B virus strain 2-18, 3215 bp)

TABLE VIII: HUMAN HBV ZINZYME AND SUBSTRATE SEQUENCE

Pos	Substrate	Seq ID	Zinzyme	Seq ID
61	ACUUUCCU G CUGGUGGC	1448	GCCACCAG GCcgaaagGCGaGuCaaGGuCu AGGAAAGU	9056
94	UGAGCCCU G CUCAGAAU	1450	AUUCUGAG GCcgaaagGCGaGuCaaGGuCu AGGGCUCA	9057
112	CUGUCUCU G CCAUAUCG	1451	CGAUAUGG GCcgaaagGCGaGuCaaGGuCu AGAGACAG	9058
169	AGAACAUC G CAUCAGGA	1454	UCCUGAUG GCcgaaagGCGaGuCaaGGuCu GAUGUUCU	9059
192	GGACCCCU G CUCGUGUU	1455	AACACGAG GCcgaaagGCGaGuCaaGGuCu AGGGGUCC	9060
315	CAAAAUUC G CAGUCCCA	1457	UGGGACUG GCcgaaagGCGaGuCaaGGuCu GAAUUUUG	9061
374	UGGUUAUC G CUGGAUGU	1458	ACAUCCAG GCcgaaagGCGaGuCaaGGuCu GAUAACCA	9062
387	AUGUGUCU G CGGCGUUU	1459	AAACGCCG GCcgaaagGCGaGuCaaGGuCu AGACACAU	9063
410	CUUCCUCU G CAUCCUGC	1460	GCAGGAUG GCcgaaagGCGaGuCaaGGuCu AGAGGAAG	9064
417	UGCAUCCU G CUGCUAUG	1461	CAUAGCAG GCcgaaagGCGaGuCaaGGuCu AGGAUGCA	9065
420	AUCCUGCU G CUAUGCCU	1462	AGGCAUAG GCcgaaagGCGaGuCaaGGuCu AGCAGGAU	9066
425	GCUGCUAU G CCUCAUCU	1463	AGAUGAGG GCcgaaagGCGaGuCaaGGuCu AUAGCAGC	9067
468	GGUAUGUU G CCCGUUUG	1464	CAAACGGG GCcgaaagGCGaGuCaaGGuCu AACAUACC	9068
518	CGGACCAU G CAAAACCU	1465	AGGUUUUG GCcgaaagGCGaGuCaaGGuCu AUGGUCCG	9069
527	CAAAACCU G CACAACUC	1466	GAGUUGUG GCcgaaagGCGaGuCaaGGuCu AGGUUUUG	9070
538	CAACUCCU G CUCAAGGA	1467	UCCUUGAG GCcgaaagGCGaGuCaaGGuCu AGGAGUUG	9071
569	CUCAUGUU G CUGUACAA	1468	UUGUACAG GCcgaaagGCGaGuCaaGGuCu AACAUGAG	9072
596	CGGAAACU G CACCUGUA	1469	UACAGGUG GCcgaaagGCGaGuCaaGGuCu AGUUUCCG	9073
631	GGGCUUUC G CAAAAUAC	1470	GUAUUUUG GCcgaaagGCGaGuCaaGGuCu GAAAGCCC	9074
687	UUACUAGU G CCAUUUGU	1471	ACAAAUGG GCcgaaagGCGaGuCaaGGuCu ACUAGUAA	9075
795	CCCUUUAU G CCGCUGUU	1474	AACAGCGG GCcgaaagGCGaGuCaaGGuCu AUAAAGGG	9076
798	UUUAUGCC G CUGUUACC	1475	GGUAACAG GCcgaaagGCGaGuCaaGGuCu GGCAUAAA	9077
911	GGCACAUU G CCACAGGA	1476	UCCUGUGG GCcgaaagGCGaGuCaaGGuCu AAUGUGCC	9078
1020	UGGGGUUU G CCGCCCCU	1479	AGGGGCGG GCcgaaagGCGaGuCaaGGuCu AAACCCCA	9079
1023	GGUUUGCC G CCCCUUUC	1480	GAAAGGGG GCcgaaagGCGaGuCaaGGuCu GGCAAACC	9080
1034	CCUUUCAC G CAAUGUGG	1481	CCACAUUG GCcgaaagGCGaGuCaaGGuCu GUGAAAGG	9081
1050	GAUAUUCU G CUUUAAUG	1482	CAUUAAAG GCcgaaagGCGaGuCaaGGuCu AGAAUAUC	9082
1058	GCUUUAAU G CCUUUAUA	1483	UAUAAAGG GCcgaaagGCGaGuCaaGGuCu AUUAAAGC	9083
1068	CUUUAUAU G CAUGCAUA	1484	UAUGCAUG GCcgaaagGCGaGuCaaGGuCu AUAUAAAG	9084
1072	AUAUGCAU G CAUACAAG	1485	CUUGUAUG GCcgaaagGCGaGuCaaGGuCu AUGCAUAU	9085
1103	ACUUUCUC G CCAACUUA	1486	UAAGUUGG GCcgaaagGCGaGuCaaGGuCu GAGAAAGU	9086
1155	ACCCCGUU G CUCGGCAA	1488	UUGCCGAG GCcgaaagGCGaGuCaaGGuCu AACGGGGU	9087
1177	UGGUCUAU G CCAAGUGU	1489	ACACUUGG GCcgaaagGCGaGuCaaGGuCu AUAGACCA	9088
1188	AAGUGUUU G CUGACGCA	1490	UGCGUCAG GCcgaaagGCGaGuCaaGGuCu AAACACUU	9089
1194	UUGCUGAC G CAACCCCC	1492	GGGGGUUG GCcgaaagGCGaGuCaaGGuCu GUCAGCAA	9090
1234	CCAUCAGC G CAUGCGUG	1493	CACGCAUG GCcgaaagGCGaGuCaaGGuCu GCUGAUGG	9091
1238	CAGCGCAU G CGUGGAAC	1494	GUUCCACG GCcgaaagGCGaGuCaaGGuCu AUGCGCUG	9092
1262	UCUCCUCU G CCGAUCCA	1495	UGGAUCGG GCcgaaagGCGaGuCaaGGuCu AGAGGAGA	9093
1275	UCCAUACC G CGGAACUC	1497	GAGUUCCG GCcgaaagGCGaGuCaaGGuCu GGUAUGGA	9094
1290	UCCUAGCC G CUUGUUUU	1498	AAAACAAG GCcgaaagGCGaGuCaaGGuCu GGCUAGGA	9095
1299	CUUGUUUU G CUCGCAGC	1499	GCUGCGAG GCcgaaagGCGaGuCaaGGuCu AAAACAAG	9096
1303	UUUUGCUC G CAGCAGGU	1500	ACCUGCUG GCcgaaagGCGaGuCaaGGuCu GAGCAAAA	9097
1349	ucugucgu g cucucccg	1502	CGGGAGAG GCcgaaagGCGaGuCaaGGuCu ACGACAGA	9098
1357	GCUCUCCC G CAAAUAUA	1503	UAUAUUUG GCcgaaagGCGaGuCaaGGuCu GGGAGAGC	9099
1382	CCAUGGCU G CUAGGCUG	1504	CAGCCUAG GCcgaaagGCGaGuCaaGGuCu AGCCAUGG	9100
1392	UAGGCUGU G CUGCCAAC	1505	GUUGGCAG GCcgaaagGCGaGuCaaGGuCu ACAGCCUA	9101
1395	GCUGUGCU G CCAACUGG	1506	CCAGUUGG GCcgaaagGCGaGuCaaGGuCu AGCACAGC	9102

1411	GAUCCUAC G CGGGACGU	1502	ACGUCCCG GCcgaaagGCGaGuCaaGGuCu GUAGGAUC	0103
1442	CCGUCGGC G CUGAAUCC	1507 1508	GGAUUCAG GCcgaaagGCGaGuCaaGGuCu GCCGACGG	9103 9104
1452	UGAAUCCC G CGGACGAC	1510	GUCGUCCG GCcgaaagGCGaGuCaaGGuCu GGGAUUCA	9104
1474	CCGGGGCC G CUUGGGGC	1512	GCCCCAAG GCcgaaagGCGaGuCaaGGuCu GGCCCCGG	9105
1489	GCUCUACC G CCCGCUUC	1513	GAAGCGGG GCcqaaaqGCGaGuCaaGGuCu GGUAGAGC	9107
1493	UACCGCCC G CUUCUCCG	1514	CGGAGAAG GCcqaaagGCGaGuCaaGGuCu GGGCGGUA	9107
1501	GCUUCUCC G CCUAUUGU	1514	ACAAUAGG GCcgaaagGCGaGuCaaGGuCu GGAGAAGC	
1528	CACGGGGC G CACCUCUC	1517	GAGAGGUG GCcqaaagGCGaGuCaaGGuCu GCCCCGUG	9109
1542	CUCUUUAC G CGGACUCC	1518	GGAGUCCG GCcgaaagGCGaGuCaaGGuCu GUAAAGAG	9110
1559	CCGUCUGU G CCUUCUCA		UGAGAAGG GCcqaaaqGCGaGuCaaGGuCu ACAGACGG	9111
1571	UCUCAUCU G CCGGACCG	1519	CGGUCCGG GCcqaaaqGCGaGuCaaGGuCu AGAUGAGA	9112
1583	GACCGUGU G CACUUCGC	1520	GCGAAGUG GCcgaaagGCGaGuCaaGGuCu ACACGGUC	9113
1590	UGCACUUC G CUUCACCU	1521	AGGUGAAG GCcgaaagGCGaGuCaaGGuCu GAAGUGCA	9114
1601	UCACCUCU G CACGUCGC	1522	GCGACGUG GCcgaaagGCGaGuCaaGGuCu AGAGGUGA	9115
1608	UGCACGUC G CAUGGAGA	1523	UCUCCAUG GCcgaaagGCGaGuCaaGGuCu GACGUGCA	9116
1628	CCGUGAAC G CCCACAGG	1524	CCUGUGGG GCcgaaagGCGaGuCaaGGuCu GUUCACGG	9117
1642	AGGAACCU G CCCAAGGU	1526	ACCUUGGG GCcgaaagGCGaGuCaaGGuCu AGGUUCCU	9118
1654	AAGGUCUU G CAUAAGAG	1527	CUCUUAUG GCcgaaagGCGaGuCaaGGuCu AAGACCUU	9119
1818	AGCACCAU G CAACUUUU	1528	AAAAGUUG GCcgaaagGCGaGuCaaGGuCu AUGGUGCU	9120
1835	UCACCUCU G CCUAAUCA	1533	UGAUUAGG GCcgaaagGCGaGuCaaGGuCu AGAGGUGA	9121
1883	CAAGCUGU G CCUUGGGU	1534	ACCCAAGG GCcgaaagGCGaGuCaaGGuCu ACAGCUUG	9122
1959	UCUUUUUU G CCUUCUGA	1535	UCAGAAGG GCcgaaagGCGaGuCaaGGuCu AAAAAAGA	9123
2002	UCGACACC G CCUCUGCU	1537	AGCAGAGG GCcgaaagGCGaGuCaaGGuCu GGUGUCGA	9124
2002	CCGCCUCU G CUCUGUAU	1541	AUACAGAG GCcgaaagGCGaGuCaaGGuCu AGAGGCGG	9125
2282	GUGGAUUC G CACUCCUC	1542	GAGGAGUG GCcqaaagGCGaGuCaaGGuCu GAAUCCAC	9126
2293	CUCCUCCU G CAUAUAGA	1548	UCUAUAUG GCcgaaagGCGaGuCaaGGuCu AGGAGGAG	9127
2311	CACCAAAU G CCCCUAUC	1549	GAUAGGG GCcgaaagGCGaGuCaaGGuCu AUUUGGUG	9128
2388	ACUCCCUC G CCUCGCAG	1550	CUGCGAGG GCcgaaagGCGaGuCaaGGuCu GAGGGAGU	9129
2393	CUCGCCUC G CAGACGAA	1552	UUCGUCUG GCcgaaagGCGaGuCaaGGuCu GAGGCGAG	9130
2412	UCUCAAUC G CCGCGUCG	1553	CGACGCGG GCcgaaaqGCGaGuCaaGGuCu GAUUGAGA	9131
2415	CAAUCGCC G CGUCGCAG	1555	CUGCGACG GCcgaaagGCGaGuCaaGGuCu GGCGAUUG	9132
2420	GCCGCGUC G CAGAAGAU	1556	AUCUUCUG GCcqaaaqGCGaGuCaaGGuCu GACGCGGC	9133
2514	GGUACCUU G CUUUAAUC	1557	GAUUAAAG GCcgaaagGCGaGuCaaGGuCu AAGGUACC	9134
2560	AUUCAUUU G CAGGAGGA	1558	UCCUCCUG GCcgaaagGCGaGuCaaGGuCu AAAUGAAU	9135
2641	UUAACUAU G CCUGCUAG	1560	CUAGCAGG GCcgaaagGCGaGuCaaGGuCu AUAGUUAA	9136
2645	CUAUGCCU G CUAGGUUU	1563	AAACCUAG GCcgaaagGCGaGuCaaGGuCu AGGCAUAG	9137
2677	AAAUAUUU G CCCUUAGA	1564 1565	UCUAAGGG GCcgaaagGCGaGuCaaGGuCu AAAUAUUU	9138
2740	UUCCAGAC G CGACAUUA	1566	UAAUGUCG GCcgaaaqGCGaGuCaaGGuCu GUCUGGAA	9139
2804	CACGUAGC G CCUCAUUU	1568	AAAUGAGG GCcgaaagGCGaGuCaaGGuCu GCUACGUG	9140
2814	CUCAUUUU G CGGGUCAC	1569	GUGACCCG GCcgaaagGCGaGuCaaGGuCu AAAAUGAG	9141
2946	UGGACCCU G CAUUCAAA	1572	UUUGAAUG GCcgaaagGCGaGuCaaGGuCu AGGGUCCA	9142
2990	CUCAACCC G CACAAGGA	1573	UCCUUGUG GCcgaaagGCGaGuCaaGGuCu GGGUUGAG	9143
3012	GGCCGGAC G CCAACAAG	1574	CUUGUUGG GCcgaaaqGCGaGuCaaGGuCu GUCCGGCC	9144
3090	GCCCUCAC G CUCAGGGC	1575	GCCCUGAG GCcgaaagGCGaGuCaaGGuCu GUGAGGGC	9145
3113	ACAACUGU G CCAGCAGC	1576	GCUGCUGG GCcgaaagGCGaGuCaaGGuCu ACAGUUGU	9146
3132	CUCCUCCU G CCUCCACC	1577	GGUGGAGG GCcgaaagGCGaGuCaaGGuCu AGGAGGAG	9147
51	AGGGCCCU G UACUUUCC	1578	GGAAAGUA GCCqaaaqGCGaGuCaaGGuCu AGGGCCCU	9148
106	AGAAUACU G UCUCUGCC	1579	GGCAGAGA GCcgaaagGCGaGuCaaGGuCu AGUAUUCU	9149
148	GGGACCCU G UACCGAAC	1580	GUUCGGUA GCcgaaagGCGaGuCaaGGuCu AGGGUCCC	9150
198	CUGCUCGU G UUACAGGC	1580	GCCUGUAA GCcgaaagGCGaGuCaaGGuCu ACGAGCAG	9151
219	UUUUUCUU G UUGACAAA	1582	UUUGUCAA GCcgaaagGCGaGuCaaGGuCu AAGAAAAA	9152
		1504		9153

297					
ACCAACCU G UCCUCCA 1585	297	ACACCCGU G UGUCUUGG	1583	CCAAGACA GCcgaaagGCGaGuCaaGGuCu ACGGGUGU	9154
350 AACCUGUU G UCCUCCAN 1586 UUGGAGGA GCCGBABAGGCGGUCAAGGUCA AACAGGUU 9157 362 UCCAAUUU G UCCUGGUU 1587 AACCAGGA GCCGBABAGGCGGUCAAGGUCA AACUGGA 9158 383 CUGGAUG GU UUGUUGCG 1589 GCCAGAGA GCCGBABAGGCGGUCAAGGUCA AACUGCAG 9159 383 CUGGAUGU G UUGUUGCG 1589 GCCAGAGA GCCGBABAGGCGGUCAAGGUCA ACUCCAG 9160 438 AUCUUCUU G UUGGUUCC 1590 AGAACCAA GCCGBABAGGCGGUCAAGGUCA AACGAGAC 9160 438 AUCUUCUU G UUGCUCCU 1590 AGAACCAA GCCGBABAGGCGGUCAAGGUCA AACGAGAC 9160 465 CAAGGUAU G UUCCCCCU 1591 ACGGGGCAA GCCGBABAGGCGGUCAAGGUCA AACGAGAC 9164 476 GCCCGUUU G UUCCCUCAA 1592 UACAGCAA GCCGBABAGGCGGGUCAAGGGUCA AACGAGCG 9163 555 ACCUCUAU G UUCCCUCA 1593 GAGGGAAA GCCGBABAGGCGGGUCAAGGGUCA AUGAGGGU 9164 566 UCCCCCAU G UUGCUUCA 1594 UACAGCAA GCCGBABGGCGGGUCAAGGGUCA AUGAGGGU 9165 572 AUGUUGCU G UACAAAAC 1595 UUCUUGUU A GCCGBAAGGCGGGGCGAGGGUCA AUGAGGGU 9166 694 UGCCACCU G VACAAAAC 1595 UGCGAUGAAG GCCGBABGGCGGGUCAAGGGUCA AUGAGGGU 9167 694 UGCCACCU G VACAAACA 1595 UGCGAUGAAG GCCGBABAGGCGGAUCAAGGGUCA AGGAACAU 9166 692 CUGCACCU G VACAAACA 1595 UGCGAUGAAG GCCGBABGGCGGGUCAAGGGUCA AGGAACAU 9166 694 UGCCACUU G UUCAGGUG 1597 CCACUGAA GCCGBACGGGGUCA AGGAACAU 9167 774 CCCCCCACU G UUCAGGUG 1597 CCACUGAA GCCGBACGGGGGCAGGAGGGUCA AGGAACAU 9167 775 UGGAUGAU G UGGGUUUU G 1598 AAGCCAGA GCCGBBAGGGCGGGUCAAGGGGUCA AUGUUCAG 9170 776 UGGAUGAU G UUCAGGUG 1597 CAAAACCA GCCGBBAGGCGGGCGAGGAGGAGGAGGAGGAGGAGGAGGAGGAGGA	299	ACCCGUGU G UCUUGGCC	1584	GGCCAAGA GCcgaaagGCGaGuCaaGGuCu ACACGGGU	9155
362	347	ACCAACCU G UUGUCCUC	1585	GAGGACAA GCcgaaagGCGaGuCaaGGuCu AGGUUGGU	9156
381 CGCUGARU G UGUCUGCG 1588 CGCAGACA GCCGBABGGCGAGUCAAGGUCA AUCCAGC 9159 383 CUGCARGO G UCUCCAGC 1589 AGAACCAA GCCGBABGGCGAGUCAAGGUCA ACAUCCAG 9160 383 ACUCUCUG G UUCUCUG G UUGCCGGU 1591 ACCGGCAA GCCGBABGGCGAGUCAAGGUCA ACAUCCAG 9160 484 485 ACUCUCUG G UUGCCCGU 1591 ACCGGCAA GCCGBABGGCGAGUCAAGGUCA ACAAAGAU 9161 485	350	AACCUGUU G UCCUCCAA	1586	UUGGAGGA GCcgaaagGCGaGuCaaGGuCu AACAGGUU	9157
383	362	UCCAAUUU G UCCUGGUU	1587	AACCAGGA GCcgaaagGCGaGuCaaGGuCu AAAUUGGA	9158
A38	381	CGCUGGAU G UGUCUGCG	1588	CGCAGACA GCcgaaagGCGaGuCaaGGuCu AUCCAGCG	9159
465 CAAGGUAU G UUGCCCGU 1591 NCGGGCAA GCGgaaagGCGaGuCaaGGuCu AUACCUUG 9162 476 GCCCGUUU G UCCUCUAA 1592 UUAGAGGA GCGgaaagGCGaGuCaaGGuCu AAACGGGC 9163 555 ACCUCUAU G UUGCCUC 1593 QAGGAAA GCGgaaagGCGaGuCaaGGuCu AUAGAGGU 9164 566 UCCCUCAU G UUGCUGUA 1594 UACAGCAA GCGGAAAGGGGAGCAAGGGUCU AUAGAGGA 9165 572 AUGUUGCU 1595 GUUUUGUA GCGGAAGGGCAAGGGUCAAGGGUCA AUAGAGGAGGGCAAGGGUCAA	383	CUGGAUGU G UCUGCGGC	1589	GCCGCAGA GCcgaaagGCGaGuCaaGGuCu ACAUCCAG	9160
476 GCCCGUUU G UCCUCUAA 1592 UUNQAGGA GCGgaaagGCGaGuCaaGGuCu ANACGGGC 9163	438	AUCUUCUU G UUGGUUCU	1590	AGAACCAA GCcgaaagGCGaGuCaaGGuCu AAGAAGAU	9161
	465	CAAGGUAU G UUGCCCGU	1591	ACGGGCAA GCcgaaagGCGaGuCaaGGuCu AUACCUUG	9162
	476	GCCCGUUU G UCCUCUAA	1592	UUAGAGGA GCcgaaagGCGaGuCaaGGuCu AAACGGGC	9163
572 AUGUUGCU G UACAAAAC 1595 GUUUUGUA GCCGAAAGGGCAGUCAAGGUCU AGCAACAU 9166 602 CUGCACCU G UAUUCCCA 1596 UGGGAAUA GCCGAAAGGCGAGUCAAGGUCU AGGUCAAGG 9167 604 UGCCAUUU G UUCAGUGG 1597 CCACUGAA GCCGAAAGGCGAGUCAAGGUCU AGUGGGA 9167 774 CCCCCACU G UCUGGCUU 1598 AAGCCAGA GCCGAAAGGCGAGUCAAGGUCU AGUGGGGG 9169 750 UGGAUGAU G UGUUGUUG 1599 CAAAACCA GCCGAAAGGCGAGUCAAGGUCU AGUGUGCA 9170 771 CCAAGUCU G UACAACAU 1600 AUGUUGUA GCCGAAAGGCGAGUCAAGGUCU AGCCUUGG 9171 801 AUGCCGCU G UUACCAAU 1601 AUUUGUGA GCCGAAAGGCGAGUCAAGGUCU AGCGUCAG 9171 818 UUUCUUUU G UCUUUGGG 1602 CCCAAGA GCCGAAAGGCCGAGUCAAGGUCU AACAGAU 9173 827 AACAUAUU G UALUUGGG 1602 CCCAAGA GCCGAAAGGCCAAGGUCU AAAACAAU 9174 827 AACAUAUU G UALUUGGG 1603 CCCAAUU GCCGAAAGGCCAAGGUCU AAAACAG 9174 846 CAAAAUG G UGUUUUAG 1605 CUAAAACA GCCGAAAGGCCAAGGUCU AAAUUGUU 9175 947 AUCAAAAU G UGUUUUAG 1605 CUAAAACA GCCGAAAGGCCAAGGUCU AAAUUGUU 9176 948 AUCUUCU G UAAACAGA 1606 UCCUAAAA GCCGAAAGGCCAAGGUCU AAAUUGUU 9177 949 GAAAGUU G UCAACGAA 1608 UUCGUUGA GCCGAAAGGCGAGCAAGGUCU AAAUGAGUU 9177 1002 AACGAAUU G UGAGUCUU 1609 AAGACCCA GCCGAAAGGCGAGCAAGGUCU AAAUGAGAU 9178 1013 CACGCAAU G UGAGUAUU 1610 AAUUUCCA GCCGAAAGGCGAGCAAGGUCU AAGUUCUU 9180 1137 AACAGUU G UGACCAA 1608 UUCGUUGA GCCGAAAGGCGAGCAAGGUCU AAUUCGUU 9180 1138 ACACGUU G UGACCAA 1611 AAGGUCCA GCCGAAAGGCGAGCACAAGGUC AAUUCGUU 9180 1139 CACGCAAU G UGAGUAUU 1610 AAUUCCA GCCGAAAGGCGAGCACAAGGUC AAUUCGUU 9181 1131 AACAGUU G UGACCCU 1611 AAGGACCA GCCGAAAGGCGAGCACAAGGUC AAUUCGUU 9181 1132 AACAGUU G UGUCCCU 1613 AGGACCGA GCCGAAAGGCCAAGGUC AAUUCGUU 9181 1134 ACACUUU G UGUCCCU 1616 GAGCACGA GCCGAAAGGCCAAGGUC AAAGCUU AAAAGCG 9181 1135 AACCCUUU G UUUCCCC 1616 GAGCACGA GCCGGAAAGGCCCAAGGUC AAAGCCG 9181 1136 ACUUUUG G UCCCCCU 1616 GAGCACGA GCCGAAAGGCCCAAGGUC AAAGCCG 9181 1137 ACCCUU	555	ACCUCUAU G UUUCCCUC	1593	GAGGGAAA GCcgaaagGCGaGuCaaGGuCu AUAGAGGU	· · · · · · · · · · · · · · · · · · ·
572	566	UCCCUCAU G UUGCUGUA	1594	UACAGCAA GCcgaaagGCGaGuCaaGGuCu AUGAGGGA	9165
6694 UGCCACCU G UAUTICCCA 1596 UGCGADUU G UUCAGUGG 1597 CCACUGAA GCGGAAAGCGCAGUCAAGGUCA AANUGGCA 9168 724 UGCCCACU G UCUGGCUU 1598 AAGCCAGA GCGGAAAGGCCAAGGUCAAGGUCA AANUGGCAG 9169 750 UGGAUGAU G UCUGGCUU 1599 CAAAACCA GCGGAAAGGCCAAGGUCA AUCAUCACA 9170 771 CCAAGUCU G UACACAAU 1600 AUGUUGUA GCGGAAAGGCCAAGGUCA AGACUUGG 9171 801 AUGCGGU G UUACCAAU 1601 AUUGUUA GCGGAGAGCAAGGUCA AGACUUGG 9172 818 UUUCUUUU G UCUUUGG 1602 CCCAAAGA GCGGAAGGGCAAGGUCA AAAAAAA 9173 888 UGGGAUUU G UACAAAAA 1602 CCCAAAUA GCGGAAAGGCCAAGGUCA AUAUCCCA 9174 927 AACAUAUU G UACAAAAA 1604 UUUUUUUU GCGGAAAGGCAAGGUCA AUAUCUCU 9175 944 AUCAAAAU G UUUUAGGA 1605 CUCAAAAC GCGGAAAGGCCAAGGUCA AAUUUUU 9177 953 AACUUCU G UAAACAGG 1607 CCUGUUUA GCCGAAAGGCCAAGGUCA AUAUUUUU 9177 991 QAAAGAAU G UGGAUAUU 1609 AACACCA GCGGAAGGCCAAGGUCA AUAUUUCU 9178 1002 AACGAAAU G UGGA	572	AUGUUGCU G UACAAAAC		GUUUUGUA GCcgaaagGCGaGuCaaGGuCu AGCAACAU	
	602	CUGCACCU G UAUUCCCA		UGGGAAUA GCcgaaagGCGaGuCaaGGuCu AGGUGCAG	
724 CCCCCACU G UCUGGCUU 1598 AAGCCAGA GCGGaaagGCGaGuCaaGGUCA AGUGGGGG 9169 750 UGGAUGAU G UGGUUUUG 1599 CAAAACCA GCGGAaagGCGaGuCaaGGGCA AGCUUGG 9170 771 CCAAGUCU G UACAACAU 1600 AUGUUGUA GCCGGAGUCAAGGGUCA AGCCUUGG 9171 801 AUGCCGU G UACACAU 1601 AUGUUGUA GCCGGAGUCAAGGUCA AGCGGCAU 9172 818 UUUCUUUU G UCUUUGGG 1602 CCCAAAGA GCGGAGAGGAGCAAGGUCA AAAAGAAA 9173 888 UGGANAAU G UACAAAAA 1604 UUUUUGUA GCGGGAGUCAAGGUCA AAAAGAA 9174 927 AACAUAUU G UACAAAAA 1604 UUUUUGUA GCGGAGAGGGUCA AAUAUUGUA 9175 944 AUCAAAAU G UGUUUAGA 1605 CCCAAAACGGGGGGGAGAGGGUCA ACAUUUUGG 9176 946 CAAAAUGU G UAAACAGA 1606 UCCUAAAA GCGGAAGGGCGAGCAAGGGUCA ACAUUUUGG 9178 951 AACUUCCU G UAAACAGA 1608 UUCGUUUA GCCGGAGAGGAGAGGACAAGGUCA AUUUUGGU 9179 1002 AACGAAUU G UGAACCUU 1609 AAGACCCA GCCGAGAGGAGAGAGAGAAGAAAAAAAAAA	694	UGCCAUUU G UUCAGUGG		CCACUGAA GCcgaaagGCGaGuCaaGGuCu AAAUGGCA	
TOTO	724	CCCCCACU G UCUGGCUU	 	AAGCCAGA GCcgaaagGCGaGuCaaGGuCu AGUGGGGG	
771 CCAAGUCU G UACACAU 1600 AUGUUGUA GCCGGAaaGGCCaAGGCCAAGGCCU AGACUUGG 9171 801 AUGCCGCU G UUACCCAU 1601 AUUGGUAA GCCGAAAGGCCAAGGUCA AGCGGCAU 9172 818 UUUCUUUU G UCUUUGGG 1602 CCCAAAGA GCCGAAAGGCCAAGGUCA AAAAAAAAAAAA	750	UGGAUGAU G UGGUUUUG			
801 AUGCCGCU G UUACCAAU 1601 AUUGGUAA GCCGAAAGA GCCGAAAGACCAAGGUCU AGAGGACU 9172 818 UUUCUUUU G UCUUUGGG 1602 CCCAAAAGA GCCGAAAGAGCCAAAGGUCU AAAAGAAA 9173 888 UUGGGAUAU G UAAUUGGG 1603 CCCCAAUUA GCCGAGGUCUAAGGUCU AAUAUCCCA 9174 927 AACAUAUU G UACAAAAA 1604 UUUUUGUA GCCGAAGGCGAGCCAAGGUCU AUUUUGAU 9176 944 AUCAAAAAU G UGUUUAGGA 1606 UCCUAAAACAGCGCAGCCCAAGGGUCUAAGAGGUCU ACAUUUUG 9177 946 CAAAAUGU G UAAACAGG 1607 CCUGUUUA GCCGAAAGGGCCGAGUCAAGGUCU ACAUUUUG 9179 991 GAAAGUAU G UGAACGAA 1608 UUCGUUGA GCCGGAAAGGGUCAAAGGUCU AAUUCUUUC 9179 1002 AACGAAUU G UGGGUCUU 1609 AAGACCCA GCCGAAAGGGCCAAAGGUCU AUUCCGUG 9181 1137 AACAGUAU G UGAACCUU 1611 AAGUUCCA GCCGAAAGGCCAAGGUCU AUUCGUG 9181 1127 AACAGUUU G UUUGCUGA 1612 UCAGCAAA GCCGAAAGGCCAAGGUCU AUUCGGCA 9183 11281 GAACCCUU G UUUGCUCC 1613 AGGAGACA GCCGAAAGGCCAAGGUCU AAAGGUUC 9186 12251 GAACCACAAGCCGAAGAGACAAGCCGAAAG	771	CCAAGUCU G UACAACAU		AUGUUGUA GCcqaaaqGCGaGuCaaGGuCu AGACUUGG	
818	801	AUGCCGCU G UUACCAAU			
888 UGGGAUAU G UAAUUGGG 1603 CCCAAUUA GCGgaaagGCGaGuCaaGGuCu AUAUCCCA 9174 927 AACAUAUU G UACAAAAA 1604 UUUUUGUA GCGgaaagGCGaGuCaaGGuCu AAUAUGUU 9175 944 AUCAAAAU G UGUUUUAG 1605 CUAAAACA GCCGaaagGCGaGuCaaGGuCu AAUAUUGGA 9176 946 CAAAAUG G UUUUAGGA 1606 UCCUAAAA GCCGaaagGCGaGuCaaGGuCu ACAUUUUG 9177 953 AACUUCCU G UAAACAGG 1607 CCUGUUUA GCCGaaagGCGaGuCaaGGuCu AGAGUU 9179 991 GAAAGAAU G UGAACGAA 1608 UUCGUGA GCCGaaagGCGaGuCaaGGuCu AUACUUUC 9179 1002 AACGAAUU G UGAACCUU 1609 AAGACCCA GCCGaaagGCGaGuCaaGGuCu AUCUUUC 9180 1137 AACAGUAU G UGAACCUU 1611 AAGGUCA GCCGaaagGCGaGuCaaGGuCu AUCUGUU 9181 1184 UGCCAAGU G UUUGCUGA 1612 UCAGCAAA GCCGaaagGCCGaGuCaaGGuCu AUCUGGCA 9183 1251 GAACCUUU G UGUCCU 1613 AGGAGACA GCCGaaagGCCGaGuCaaGGuCu ACAAAGGU 9184 1253 ACCUUUG U G UUUUGCUC 1614 AGAGACAG GCGGaaagGCCaaGuCaaGGuCu ACAAAGGU 9188 1294 AGCCGCUU G UCUCCUC	\vdash	UUUCUUUU G UCUUUGGG			
927 AACAUAUU G UACAAAAA 1604 UUUUUGUA GCGgaaagGCGaGuCaaGGuCu AAUAUGUU 9175 944 AUCAAAAU G UGUUUUAG 1605 CUAAAACA GCCgaaagGCGaGuCaaGGuCu AUUUUGAU 9176 946 CAAAAUGU G UUUUAGGA 1606 UCCUAAAA GCCgaaagGCGaGuCaaGGuCu ACAUUUUG 9177 963 AACUUCCU G UAAACAGG 1607 CCUGUUUA GCCgaaagGCGaGuCaaGGuCu AGAGAGUU 9179 991 GAAAGUAU G UCAACGAA 1608 UUCGUUGA GCCgaaagGCGaGuCaaGGuCu AUACUUUC 9179 1002 AACGAAUU G UGGUCUU 1609 AAGACCCA GCCgaaagGCGaGuCaaGGuCu AUUCGUU 9180 1039 CACGCAAU G UGGUCUU 1610 AAUAUCCA GCCgaaagGCGaGuCaaGGuCu AUUCGUG 9181 1137 AACAGUAU G UGAACCUU 1611 AAGGUCAC GCCgaaagGCGaGuCaaGGuCu AUACUGCU 9182 1184 UGCCAGAG G UGCUGCU 1613 AGGAGACA GCCgaaagGCGaGuCaaGGuCu AAAGGUU 9184 1251 GAACCUU G UUUUGCUC 1613 AGGAGACA GCCgaaagGCGaGuCaaGGuCu AAAGGUC 9184 1254 ACCUUUGU G UCCUCCU 1616 GAGCAAAA GCCgaaagGCGaGuCaaGGuCu AAAGGCG 9188 1294 ACCGCUU G UUUACGUC					
944 AUCAAAAU G UGUUUUAG 1605 CUAAAACA GCCGaaagGCGaGuCaaGGuCu AUUUUGAU 9176 946 CAAAAUGU G UUUUAGGA 1606 UCCUAAAA GCCGaaagGCGaGuCaaGGuCu ACAUUUUG 9177 953 AACUUCCU G UAAACAGG 1607 CCUGUUUA GCCGAAAGGCAGGUCu AGGAAGUU 9178 991 GAAAGUAU G UCACGAA 1608 UUCGUUGA GCCGAAGGCCGAGUCAAGGUCu AUACUUUC 9179 1002 AACGAAGU G UGGGUCUU 1609 AAGACCCA GCCGAAGGCCGAGUCAAGGUCu AUUCCUU 9180 1039 CACGCAAU G UGGAUAUU 1611 AAGGUCA GCCGAAGGCCCA AUACUGUU 9181 1137 AACAGUAU G UGAACCUU 1611 AAGGGUCA GCCGAAAGGGCCAACGGUCAAGGUCU AUACUGUU 9182 1184 UGCCAAGU G UGUCUCCU 1613 AAGGACCAA GCCGAAGGGCCAACGGUCAAGGUCA AUACUGUU 9182 1251 GAACCUUU G UGUCUCCU 1614 AGAGGAGA GCCGAAGGGCCAGGACCAAGGUCA AAGGUUC 9186 1254 AGCCGCUU G UUUUGCUC 1615 GAGCAAAA GCCGAAGGCCAGGUCAAGGUCA AAAGGUU 9187 1390 GCUAGGCU G UUUUGCUC 1616 GAGCACGA GCCGAAGGCCAGGUCAAGGUCA AGAGUCA AGAGUCA AGAGUCA AGAGUCA GCCGAAGGUCAAGGUCA AGAGUCA AGAGACGAGGUCAAGGUCA AGAGACCA GCCGAAGGUCAAGGUCA AGAGACA GCCGAAGGUCAA	L				
946 CAAAAUGU G UUUUAGGA 1606 UCCUAAAA GCCgaaagGCGaGuCaaGGuCu ACAUUUUG 9177 963 AACUUCCU G UAAACAGG 1607 CCUGUUUA GCCgaaagGCGaGuCaaGGuCu AGGAAGUU 9178 991 GAAAGUAU G UCAACGAA 1608 UUCGUUGA GCCgaaagGCGaGuCaaGGuCu AUUCUUC 9179 1002 AACGAAUU G UGGGUCUU 1609 AAGACCCA GCCgaaagGCGaGuCaaGGuCu AUUCGUU 9180 1039 CACGCAAU G UGGAUAUU 1610 AAUAUCCA GCCgaaagGCGaGuCaaGGuCu AUUCGUG 9181 1137 AACAGUAU G UGAACCUU 1611 AAGGUCA GCCgaaagGCGaGuCaaGGuCu AUUCGUG 9182 1184 UGCCAAGU G UUUGCUGA 1612 UCAGCAAA GCCgaaagGCGaGuCaaGGuCu AUACGGCA 9183 1251 GAACCUUU G UUUGCUC 1613 AGGAGACA GCCgaaagGCGaGuCaaGGuCu ACAAAGGU 9184 1253 ACCUUUGU G UUUUGCUC 1614 AGAGGAGA GCCgaaagGCGaGuCaaGGuCu ACGGCUC ACAAAGGU 9186 1294 AGCCGCUU G UUUUGCUC 1615 GAGCAAAA GCCgaaagGCGaGuCaaGGuCu AAGCGCU 9186 1394 ACCUAGCC G UCGUCCU C 1615 GAGCACAA GCCgaaagGCGaGuCaaGGuCu AAGCGCCU 9188 1425 CGUCCUUU G UUUACGUC 1618 GACGUAAA GCCgaaa	1				
963 AACUUCCU G UAAACAGG 1607 CCUGUUUA GCCGAAAGGCGAGCCAAGGCCU AGGAAGUU 9178 991 GAAAGUAU G UCAACGAA 1608 UUCGUUGA GCCGAAAGGCGAGCCAAGGCCU AUACUUUC 9179 1002 AACGAAUU G UGGGUCUU 1609 AAGACCCA GCCGAAAGGCGAGCCAAGGCCU AUACCUUC 9180 1039 CACGCAAU G UGGAUAUU 1610 AAUAUCCA GCCGAAAGGCGAGCCAAGGCCU AUUCGCUG 9181 1137 AACAGUAU G UGAACCUU 1611 AAGGUUCA GCCGAAAGGCGAGCCAAGGCCU AUUCGCUG 9181 1184 UGCCAAGU G UUUGCUGA 1612 UCAGCAAA GCCGAAAGGCGAGCCAAGGCCU AUUCGCCA 9183 1251 GAACCUUU G UGUCUCCU 1613 AGGAGACA GCCGAAAGGCGAGCCAAGGCCU ACUUGGCCA 9183 1252 ACCUUUGU G UCUCCUCU 1614 AGAGGACA GCCGAAAGGCGAGCCAAGGCCU ACUUGGCCA 9183 1253 ACCUUUGU G UCUCCUCU 1614 AGAGGACA GCCGAAAGGCGAGCCAAGGCCU AAAGGGUC 9186 1254 AGCCGCU G UUUUGCUC 1615 GAGCAAAA GCCGAAAGGCGAGCCAAGGCCU AAAGGGU 9186 1344 ACAAUUCU G UCGUCCCC 1616 GAGCACAA GCCGAAAGGCGAGCCAAGGCCU AAAAGGU 9187 1390 GCUAGGCU G UUUUGCUC 1616 GAGCACAA GCCGAAAGGCAGCACAAGGCCU 9188 1425 CGUCCUUU G UUCACCCC 1616 GAGCACAA GCCGAAAGGCAGCACAAGGCCU AGCCUAGC 9188 1426 CGUCCUUU G UUUACGUC 1618 GACGUAAA GCCGAAGAGCAGCACAAGGCCU AGCCUAGC 9188 1427 CGUCCUUU G UUCACCAC 1619 GGUCGGAA GCCGAAAGGCAGCACAAGGCAC AGCCUAGC 9189 1508 CGCCUAUU G UACCGACC 1619 GGUCGGUA GCCGAAAGGCAGACCAAGGCAC AAAAGGCA 9189 1508 CGCCCUUU G UGCCCUUCU 1620 AGAAGGCA GCCGAAAGGCAGACCAAGGCAC AAAAGGCA 9189 1508 CGCCCUAUU G UGCCCUUCU 1620 AGAAGGCA GCCGAAAGGCAGACCAAGGCAC AAAAGGCA 9189 15181 CGGACCGG UGCACUUC 1621 GAAGUAGA GCCGAAAGGCAGACCAAGGCAC AAAAGGCA 9199 1521 CAAAGACUG UGCACUUC 1621 GAAGUACA GCCGAAAGGCACAAGGCAC AAAAGACCU 9199 1522 AAGACCGU UGCACUUC 1623 AGAAGGCA GCGGAAAGGCACAAGGCAC AAAGACCU 9199 1721 AAGACCGU UGCACACUC 1622 GUCGUUAA GCCGAAAGGCACAAGGCAC AAAGACCU 9199 1722 AAGACCGU UUAAAUAA 1623 UAAACACA GCCGAAAGGCCAAGGCACAAGGCAC AAAGACCU 9199 1723 GACUGUUG UUAAAUAA 1623 UAAACACA GCCGAAAGGCACAAGGCAC AAAGACCU 9199 1724 AAGACCGU UUCAACGA 1623 UCCAUCAAGAC GCGAAAGGCCAAGGCACAAGCAC AAAACCU 9199 1725 AGGUCUUU G UACCACA 1622 UCCAUCAAGAC GCGAAAGGCCAAGGCACAAGCAC AAAACCU 9199 1726 AAGACCGA GUCAAGAC 1622 UCCAUCAGA GCCGAAAGGCCAAGACCAACACACACACACACACA	——				
991 GAAAGUAU G UCAACGAA 1608 UUCGUUGA GCCGAAAGGGUCAAGGGUCA AUACUUUC 9179 1002 AACGAAUU G UGGGUCUU 1609 AAGACCCA GCCGAAAGGGUCAAGGGUCAAAUUCGUU 9180 1039 CACGCAAU G UGGAUAUU 1610 AAUAUCCA GCCGAAAGGGGAGCAAAGGUCAAUUCGUU 9181 1137 AACAGUAU G UGAACCUU 1611 AAGGUUCA GCCGAAAGGGGAGCAAAGGUCAAUAUCGUU 9182 1184 UGCCAAGU G UUUGCUGA 1612 UCAGCAAA GCCGAAAGGCGAGCAAAGGUCAAAGGUCAAAGGUCAAGGUCAAAGGUCAAGGUCAAGGUCAAAGGUCAAGGUCAAGGUCAAAGGUCAAGGUCAAAGGUCAAAGGUCAAAGGUCAAAGGUCAAAGGUCAAAGGUCAAAGGUCAAAGGUCAAAGGUCAAAGGUCAAAGGUCAAAGGUCAAAAGGAAAAAAGGAAAAAAAA	-				
1002 AACGAAUU G UGGGUCUU 1609 AAGACCCA GCCGAAGGGCCAAGGGUC AAUUCGUU 9180 1039 CACGCAAU G UGGAUAUU 1610 AAUAUCCA GCCGAAGGGCGAGUCAAGGGUC AUUGCGUG 9181 1137 AACAGUAU G UGAACCUU 1611 AAGGUUCA GCCGGAAGGGCGAGUCAAGGGUC AUACCUGUU 9182 1184 UGCCAAGU G UUUGCUGA 1612 UCAGCAAA GCCGGAAGGGCGAGUCAAGGUC ACUUGGCA 9183 1251 GAACCUUU G UGUCUCCU 1613 AGGAGACA GCCGGAAGGGCGAGUCAAGGUC ACUUGGCA 9183 1253 ACCUUUGU G UCUCCUCU 1614 AGAGGAGA GCCGGAAGGGCGAGUCAAGGUC ACAAAGGU 9186 1294 AGCGGCUU G UUUUGCUC 1615 GAGCAAAA GCCGGAAGGGCGAGUCAAGGUC ACAAAGGU 9186 1344 ACAAUUCU G UCGUGCUC 1615 GAGCAAAA GCCGGAAGGCGAGUCAAGGUCA AAGCGGCU 9186 1344 ACAAUUCU G UCGUGCCC 1616 GAGCACGA GCCGGAAGGCGAGUCAAGGUCA AAGCGGCU 9186 1344 ACAAUUCU G UCGUGCCC 1617 UGGCAGCA GCCGGAAGGCGAGUCAAGGUCA AGAAUUGU 9187 1390 GCUAGGCCU G UUUUACGUC 1618 GACGUAAA GCCGGAAGGCGAGUCAAGGUCA AAGCACGA 9188 1425 CGUCCUUU G UUUACGUC 1618 GACGUAAA GCCGGAAGGCGAGUCAAGGUCA AAGCACG 9188 1425 CGUCCUUU G UUCACGAC 1619 GGUCGGUA GCCGGAAGGGCGAGUCAAGGUCA AAAGCACG 9189 1508 CGCCUAUU G UACCGACC 1619 GGUCGGUA GCCGGAAGGGCGAGUCAAGGUCA AAUAGGCC 9190 1557 CCCCGUCU G UGCCUUCU 1620 AGAAGGCA GCCGAAAGGCGAGCACAAGGUCAAGGUCA AAUAGGCC 9190 1558 CGCCUAUU G UCCACCUC 1621 GAAGUGCA GCCGGAAAGGCAGGUCAAGGUCAAGGUCAAGGUCAAGGUCAAGGACGAGGACAGAACAAAGAACAAAGAACAAAGAACAAAACAAAGAACAAAACAAAGAACAAAACAAAGAACAAAACAAAACAAAACAAAACAAAACAAAACAAAACAAAA	-				
1039 CACGCAAU G UGGAUAUU 1610 AAUAUCCA GCCGAAAGGCGAGUCAAGGCCU AUUGCGUG 9181 1137 AACAGUAU G UGAACCUU 1611 AAGGUUCA GCCGAAAGGCGAGUCAAGGUCU AUACUGUU 9182 1184 UGCCAAGU G UUUGCUGA 1612 UCAGCAAA GCCGAAAGGCGAGUCAAGGUCU ACUUGGCA 9183 1251 GAACCUUU G UGUCUCCU 1613 AGGAGACA GCCGAAAGGCGAGUCAAGGUCU ACAAAGGUUC 9184 1253 ACCUUUGU G UCUCCUU 1614 AGAGGAGA GCCGAAAGGCGAGUCAAGGUCU ACAAAGGU 9185 1294 AGCCGCUU G UUUUGCUC 1615 GAGCAAAA GCCGAAAGGCGAGUCAAGGUCU ACAAAGGU 9186 1344 ACAAUUCU G UCGUGCUC 1616 GAGCACGA GCCGAAAGGCGAGUCAAGGUCU ACAAAGGU 9186 1344 ACAAUUCU G UCGUGCCA 1617 UGGCAGCA GCCGAAGGCGAGGAGCAAGGUCU AGAAUUGU 9187 1390 GCUAGGCU G UUUUACGUC 1618 GACGUAAA GCCGGAGGCGAGGAGCAAGGUCU AGAAUUGU 9187 1425 CGUCCUUU G UUUUACGUC 1618 GACGUAAA GCCGAAGGCGAGUCAAGGUCU AGACUAGC 9188 1425 CGUCCUUU G UUUUACGUC 1619 GGUCGGUA GCCGAAGGCGAGUCAAGGUCU AAAAGGAC 9189 1508 CGCCUAUU G UACCGACC 1619 GGUCGGUA GCCGAAGGCGAGUCAAGGUCU AAAAGGAC 9189 1508 CGCCUAUU G UACCGACC 1619 GGUCGGUA GCCGAAGGCGAGUCAAGGUCU AAAAGGAC 9190 1557 CCCCGUCU G UGCCUUCU 1620 AGAAGGCA GCCGAAAGGCGAGUCAAGGUCU AAAAGGAC 9190 1558 CGCCGACCGU G UGCACUUC 1621 GAAGUGCA GCCGAAAGGCGAGUCAAGGUCU ACGGUCCG 9191 1581 CGGACCGU G UGCACUUC 1621 GAAGUGCA GCCGAAAGGCGAGCCAAGGUCU ACGGUCCG 9192 1684 UCAGCAAU G UCAACGAC 1622 GUCGUUGA GCCGAAAGGCCAAGGUCU ACGGUCCG 9192 1719 CAAAGACU G UGUUUAAU 1623 UAAACACA GCCGAAAGGCCAAGGUCU ACGUUCUG 9194 1721 AAGACUGU G UGUUUAAU 1623 UAAACACA GCCGAAAGGCCAAGGUCU ACGUCUU 9195 1722 AGCUGUU G UGUUUAAU 1624 AUUAAACA GCCGAAAGGCCAAGGUCU ACAGUCUU 9195 1723 GACUGUU G UGUUAAUGA 1625 UCAUUAAA GCCGAAAGGCCAAGGUCU ACAGUCU 9196 1772 AGGUCUUU G UACACGAC 1626 UCCUAGUA GCCGAAAGGCCAAGGUCU ACACGUC 9196 1801 AAAUUGGU G UGUCACC 1628 GGUGAACA GCCGAAAGGCCAAGGUCU ACACACUU 9197 1785 AGGAGGCU G UAGACAA 1626 UCCUAGUA GCCGAAAGGCCAAGGUCU ACACACUU 9197 1786 AGGAGGCU G UACACGAC 1629 CUCGUAGAA GCCGAAAGGCCAAGGUCU ACACCAAUU 9199 1801 AAAUUGGU G UUCAACCC 1628 GGUGAACA GCCGAAAGGCCAAGGUCU ACACCAAU 9200 1850 CAUCUCAU G UUCACCC 1632 GGUCAAGGCCAAGGCCU AUGAACAU 9200 1850 CAUCUCAU G UUCAACCC 1632 GGUCAAGGCCAAGGCCAAG	—				
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1425 CGUCCUUU G UUUACGUC 1618 GACGUAAA GCCgaaagGCGaGuCaaGGuCu AAAGGACG 9189 1508 CGCCUAUU G UACCGACC 1619 GGUCGGUA GCCgaaagGCGaGuCaaGGuCu AAUAGGCG 9190 1557 CCCCGUCU G UGCCUUCU 1620 AGAAGGCA GCCgaaagGCGaGuCaaGGuCu AGACGGGG 9191 1581 CGGACCGU G UGCACUUC 1621 GAAGUGCA GCCgaaagGCGaGuCaaGGuCu ACGGUCCG 9192 1684 UCAGCAAU G UCAACGAC 1622 GUCGUUGA GCCgaaagGCGaGuCaaGGuCu AUUGCUGA 9193 1719 CAAAGACU G UGUGUUUA 1623 UAAACACA GCCgaaagGCGaGuCaaGGuCu AGUCUUUG 9194 1721 AAGACUGU G UGUUUAAU 1624 AUUAAACA GCCgaaagGCGaGuCaaGGuCu ACAGUCUU 9195 1723 GACUGUGU G UUUAAUGA 1625 UCAUUAAA GCCgaaagGCGaGuCaaGGuCu ACACAGUC 9196 1772 AGGUCUUU G UACUAGGA 1626 UCCUAGUA GCCgaaagGCGaGuCaaGGuCu AAAGACCU 9197 1785 AGGAGGCU G UAGGCAUA 1627 UAUGCCUA GCCgaaagGCGaGuCaaGGuCu AGCCUCCU 9198 1801 AAAUUGGU G UGUUCACC 1628 GGUGAACA GCCgaaagGCGaGuCaaGGuCu ACCAAUUU 9199 1803 AUUGGUGU G UUCACCAG 1629 CUGGUGAA GCCgaaagGCGaGuCaaGGuCu ACACCAAU 9200 1850 CAUCUCAU G UUCAUGUC 1631 GACAUGAA GCCgaaagGCGaGuCaaGGuCu AUGAGACU 9201 1856 AUGUUCAU G UCCACUG 1631 CAGUAGGA GCCgaaagGCGaGuCaaGGuCu AUGAGACAU 9201 1856 AUGUUCAU G UUCACCUG 1631 CAGUAGGA GCCgaaagGCGaGuCaaGGuCu AUGAGACAU 9202 1860 CAUCUCAU G UUCACCUG 1631 CAGUAGGA GCCgaaagGCGaGuCaaGGuCu AUGAGACAU 9201 1860 CAUCUCAU G UUCACCUG 1631 CAGUAGGA GCCgaaagGCGaGuCaaGGuCu AUGAGACAU 9201 1860 CAUCUCAU G UUCACCUG 1631 CAGUAGGA GCCgaaagGCGaGuCaaGGuCu AUGAGACAU 9201 1860 CAUCUCAU G UUCACCUG 1631 CAGUAGGA GCCgaaagGCGaGuCaaGGuCu AUGAACAU 9202					
1508 CGCCUAUU G UACCGACC 1619 GGUCGGUA GCCgaaagGCGaGuCaaGGuCu AAUAGGCG 9190 1557 CCCCGUCU G UGCCUUCU 1620 AGAAGGCA GCCgaaagGCGaGuCaaGGuCu AGACGGGG 9191 1581 CGGACCGU G UGCACUUC 1621 GAAGUGCA GCCgaaagGCGaGuCaaGGuCu ACGGUCCG 9192 1684 UCAGCAAU G UCAACGAC 1622 GUCGUUGA GCCgaaagGCGaGuCaaGGuCu AUUGCUGA 9193 1719 CAAAGACU G UGUUUUA 1623 UAAACACA GCCgaaagGCGaGuCaaGGuCu AGUCUUUG 9194 1721 AAGACUGU G UGUUUAAU 1624 AUUAAACA GCCgaaagGCGaGuCaaGGuCu ACAGUCUU 9195 1723 GACUGUGU G UUUAAUGA 1625 UCAUUAAA GCCgaaagGCGaGuCaaGGuCu ACACGUCU 9196 1772 AGGUCUUU G UACUAGGA 1626 UCCUAGUA GCCgaaagGCGaGuCaaGGuCu AAAGACCU 9197 1785 AGGAGGCU G UAGGCAUA 1627 UAUGCCUA GCCgaaagGCGaGuCaaGGuCu ACCAAUUU 9199 1801 AAAUUGGU G UGUUCACC 1628 GGUGAACA GCCgaaagGCGaGuCaaGGuCu ACCAAUUU 9199 1803 AUUGGUGU G UUCACCAG 1629 CUGGUGAA GCCgaaagGCGaGuCaaGGuCu ACACCAAU 9200 1850 CAUCUCAU G UUCAUGUC 1630 GACAUGAA GCCgaaagGCGaGuCaaGGuCu ACACCAAU 9200 1850 CAUCUCAU G UUCACCG 1631 CAGUAGGA GCCgaaagGCGaGuCaaGGuCu AUGAGAUG 9201 1854 GUCCUACU G UUCAAGCC 1632 GGCUUGAA GCCgaaagGCGaGuCaaGGuCu AUGAACAU 9200 1856 AUGUUCAU G UUCAAGCC 1631 CAGUAGGA GCCgaaagGCGaGuCaaGGuCu AUGAACAU 9202 1864 GUCCUACU G UUCAAGCC 1632 GGCUUGAA GCCgaaagGCGaGuCaaGGuCu AUGAACAU 9202	<u> </u>				
1557 CCCCGUCU G UGCCUUCU 1620 AGAAGGCA GCCgaaagGCGaGuCaaGGuCu AGACGGGG 9191 1581 CGGACCGU G UGCACUUC 1621 GAAGUGCA GCCgaaagGCGaGuCaaGGuCu ACGGUCCG 9192 1684 UCAGCAAU G UCAACGAC 1622 GUCGUUGA GCCgaaagGCGaGuCaaGGuCu AUUGCUGA 9193 1719 CAAAGACU G UGUGUUUA 1623 UAAACACA GCCgaaagGCGaGuCaaGGuCu AGUCUUUG 9194 1721 AAGACUGU G UGUUUAAU 1624 AUUAAACA GCCgaaagGCGaGuCaaGGuCu ACAGUCUU 9195 1723 GACUGUGU G UUUAAUGA 1625 UCAUUAAA GCCgaaagGCGaGuCaaGGuCu ACACAGUC 9196 1772 AGGUCUUU G UACUAGGA 1625 UCCUAGUA GCCgaaagGCGaGuCaaGGuCu AAAGACCU 9197 1785 AGGAGGCU G UAGGCAUA 1627 UAUGCCUA GCCgaaagGCGaGuCaaGGuCu AGCCUCCU 9198 1801 AAAUUGGU G UGUUCACC 1628 GGUGAACA GCCgaaagGCGaGuCaaGGuCu ACCAAUUU 9199 1803 AUUGGUGU G UUCACCAG 1629 CUGGUGAA GCCgaaagGCGaGuCaaGGuCu ACACCAAU 9200 1850 CAUCUCAU G UUCAUGUC 1630 GACAUGAA GCCgaaagGCGaGuCaaGGuCu AUGAGACAU 9201 1856 AUGUUCAU G UCCUACUG 1631 CAGUAGGA GCCgaaagGCGaGuCaaGGuCu AUGAACAU 9202 1864 GUCCUACU G UUCAAGCC 1632 GGCUUGAA GCCgaaagGCGaGuCaaGGuCu AUGAACAU 9202					
1581 CGGACCGU G UGCACUUC 1621 GAAGUGCA GCCgaaagGCGaGuCaaGGuCu ACGGUCCG 9192 1684 UCAGCAAU G UCAACGAC 1622 GUCGUUGA GCCgaaagGCGaGuCaaGGuCu AUUGCUGA 9193 1719 CAAAGACU G UGUGUUUA 1623 UAAACACA GCCgaaagGCGaGuCaaGGuCu AGUCUUUG 9194 1721 AAGACUGU G UGUUUAAU 1624 AUUAAACA GCCgaaagGCGaGuCaaGGuCu ACAGUCUU 9195 1723 GACUGUGU G UUUAAUGA 1625 UCAUUAAA GCCgaaagGCGaGuCaaGGuCu ACACAGUC 9196 1772 AGGUCUUU G UACUAGGA 1626 UCCUAGUA GCCgaaagGCGaGuCaaGGuCu AAAGACCU 9197 1785 AGGAGGCU G UAGGCAUA 1627 UAUGCCUA GCCgaaagGCGaGuCaaGGuCu AAGACCU 9198 1801 AAAUUGGU G UGUUCACC 1628 GGUGAACA GCCgaaagGCGaGuCaaGGuCu ACCAAUUU 9199 1803 AUUGGUGU G UUCACCAG 1629 CUGGUGAA GCCgaaagGCGaGuCaaGGuCu ACACCAAU 9200 1850 CAUCUCAU G UUCAUGUC 1630 GACAUGAA GCCgaaagGCGaGuCaaGGuCu AUGAGACAU 9201 1856 AUGUUCAU G UCCUACUG 1631 CAGUAGGA GCCgaaagGCGaGuCaaGGuCu AUGAACAU 9202 1864 GUCCUACU G UUCAAGCC 1632 GGCUUGAA GCCgaaagGCGaGuCaaGGuCu AUGAACAU 9202					
1684 UCAGCAAU G UCAACGAC 1622 GUCGUUGA GCCgaaagGCGaGuCaaGGuCu AUUGCUGA 9193 1719 CAAAGACU G UGUGUUUA 1623 UAAACACA GCCgaaagGCGaGuCaaGGuCu AGUCUUUG 9194 1721 AAGACUGU G UGUUUAAU 1624 AUUAAACA GCCgaaagGCGaGuCaaGGuCu ACAGUCUU 9195 1723 GACUGUGU G UUUAAUGA 1625 UCAUUAAA GCCgaaagGCGaGuCaaGGuCu ACACAGUC 9196 1772 AGGUCUUU G UACUAGGA 1626 UCCUAGUA GCCgaaagGCGaGuCaaGGuCu AAAGACCU 9197 1785 AGGAGGCU G UAGGCAUA 1627 UAUGCCUA GCCgaaagGCGaGuCaaGGuCu AACACAGUC 9198 1801 AAAUUGGU G UGUUCACC 1628 GGUGAACA GCCgaaagGCGaGuCaaGGuCu ACCAAUUU 9199 1803 AUUGGUGU G UUCACCAG 1629 CUGGUGAA GCCgaaagGCGaGuCaaGGuCu ACACCAAU 9200 1850 CAUCUCAU G UUCAUGUC 1630 GACAUGAA GCCgaaagGCGaGuCaaGGuCu AUGAGAUG 9201 1856 AUGUUCAU G UCCUACUG 1631 CAGUAGGA GCCgaaagGCGaGuCaaGGuCu AUGAACAU 9202 1864 GUCCUACU G UUCAAGCC 1632 GGCUUGAA GCCgaaagGCGaGuCaaGGuCu AUGAACAU 9202					
1719 CAAAGACU G UGUGUUUA 1623 UAAACACA GCCgaaagGCGaGuCaaGGuCu AGUCUUUG 9194 1721 AAGACUGU G UGUUUAAU 1624 AUUAAACA GCCgaaagGCGaGuCaaGGuCu ACAGUCUU 9195 1723 GACUGUGU G UUUAAUGA 1625 UCAUUAAA GCCgaaagGCGaGuCaaGGuCu ACACAGUC 9196 1772 AGGUCUUU G UACUAGGA 1626 UCCUAGUA GCCgaaagGCGaGuCaaGGuCu AAAGACCU 9197 1785 AGGAGGCU G UAGGCAUA 1627 UAUGCCUA GCCgaaagGCGaGuCaaGGuCu AGCCUCCU 9198 1801 AAAUUGGU G UGUUCACC 1628 GGUGAACA GCCgaaagGCGaGuCaaGGuCu ACCAAUUU 9199 1803 AUUGGUGU G UUCACCAG 1629 CUGGUGAA GCCgaaagGCGaGuCaaGGuCu ACACCAAU 9200 1850 CAUCUCAU G UUCAUGUC 1630 GACAUGAA GCCgaaagGCGaGuCaaGGuCu AUGAGAUG 9201 1856 AUGUUCAU G UCCUACUG 1631 CAGUAGGA GCCgaaagGCGaGuCaaGGuCu AUGAACAU 9202 1864 GUCCUACU G UUCAAGCC 1632 GGCUUGAA GCCgaaagGCGaGuCaaGGuCu AUGAACAU 9203					
1721 AAGACUGU G UGUUUAAU 1624 AUUAAACA GCCGAAAGGCGAGUCAAGGUCU ACAGUCUU 9195 1723 GACUGUGU G UUUAAUGA 1625 UCAUUAAA GCCGAAAGGCGAGUCAAGGUCU ACACAGUC 9196 1772 AGGUCUUU G UACUAGGA 1626 UCCUAGUA GCCGAAAGGCGAGUCAAGGCUCU AAAGACCU 9197 1785 AGGAGGCU G UAGGCAUA 1627 UAUGCCUA GCCGAAAGGCGAGUCAAGGCUCU AGCCUCCU 9198 1801 AAAUUGGU G UGUUCACC 1628 GGUGAACA GCCGAAAGGCGAGUCAAGGUCU ACCAAUUU 9199 1803 AUUGGUGU G UUCACCAG 1629 CUGGUGAA GCCGAAAGGCGAGUCAAGGUCU ACACCAAU 1850 CAUCUCAU G UUCAUGUC 1630 GACAUGAA GCCGAAAGGCGAGUCAAGGCUCU AUGAGAUG 1856 AUGUUCAU G UCCUACUG 1631 CAGUAGGA GCCGAAAGGCGAGUCAAGGCUCU AUGAACAU 9202 1864 GUCCUACU G UUCAAGCC 1632 GGCUUGAA GCCGAAAGGCGAGUCAAGGCUCU AUGAACAU 9202					
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1785 AGGAGGCU G UAGGCAUA 1627 UAUGCCUA GCCgaaagGCGaGuCaaGGuCu AGCCUCCU 9198 1801 AAAUUGGU G UGUUCACC 1628 GGUGAACA GCCgaaagGCGaGuCaaGGuCu ACCAAUUU 9199 1803 AUUGGUGU G UUCACCAG 1629 CUGGUGAA GCCgaaagGCGaGuCaaGGuCu ACACCAAU 9200 1850 CAUCUCAU G UUCAUGUC 1630 GACAUGAA GCCgaaagGCGaGuCaaGGuCu AUGAGAUG 9201 1856 AUGUUCAU G UCCUACUG 1631 CAGUAGGA GCCgaaagGCGaGuCaaGGuCu AUGAACAU 9202 1864 GUCCUACU G UUCAAGCC 1632 GGCUUGAA GCCgaaagGCGaGuCaaGGuCu AUGAACAU 9203	-				
1801 AAAUUGGU G UGUUCACC 1628 GGUGAACA GCCgaaagGCGaGuCaaGGuCu ACCAAUUU 9199 1803 AUUGGUGU G UUCACCAG 1629 CUGGUGAA GCCgaaagGCGaGuCaaGGuCu ACACCAAU 9200 1850 CAUCUCAU G UUCAUGUC 1630 GACAUGAA GCCgaaagGCGaGuCaaGGuCu AUGAGAUG 9201 1856 AUGUUCAU G UCCUACUG 1631 CAGUAGGA GCCgaaagGCGaGuCaaGGuCu AUGAACAU 9202 1864 GUCCUACU G UUCAAGCC 1632 GGCUUGAA GCCgaaagGCGaGuCaaGGuCu AGUAGGAC 9203					
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1850 CAUCUCAU G UUCAUGUC 1630 GACAUGAA GCcgaaagGCGaGuCaaGGuCu AUGAGAUG 9201 1856 AUGUUCAU G UCCUACUG 1631 CAGUAGGA GCcgaaagGCGaGuCaaGGuCu AUGAACAU 9202 1864 GUCCUACU G UUCAAGCC 1632 GGCUUGAA GCcgaaagGCGaGuCaaGGuCu AGUAGGAC 9203					9199
1856 AUGUUCAU G UCCUACUG 1631 CAGUAGGA GCcgaaagGCGaGuCaaGGuCu AUGAACAU 9202 1864 GUCCUACU G UUCAAGCC 1632 GGCUUGAA GCcgaaagGCGaGuCaaGGuCu AGUAGGAC 9203	J				9200
1864 GUCCUACU G UUCAAGCC 1632 GGCUUGAA GCCgaaagGCGaGuCaaGGuCu AGUAGGAC 9203					9201
1991 NCCAACCU C NCCCUNCC	 				9202
1881 UCCAAGCO G UGCCUUGG 1633 CCAAGGCA GCCgaaagGCGaGuCaaGGuCu AGCUUGGA 9204					9203
	1881	UCCAAGCU G UGCCUUGG	1633	CCAAGGCA GCcgaaagGCGaGuCaaGGuCu AGCUUGGA	9204

Description	9205 9206 9207 9208 9209 9210 9211 9212 9213 9214 9215 9216 9217 9218 9219 9220
2045 GGAACAUU G UUCACCUC 1636 GAGGUGAA GCCGAAGGGCGAGGCGAGGCCAAGGUCA ANUGUUCC 2082 GCUJAUUCUGU G UUGAGGGG 1637 CCCCAACA GCCGAAGGGCGAGCCAAGGUCA ACGAAUAA CACGAAUA UAUUCUGU G UUGAGGGU 1638 CACCCCAA GCCGAAGGCGAGCCAAGGGUCA ACGAAUAA 1639 AACGUUGA GCCGAAGGGCGAGCCAAGGGUCA ACGAAUAA 2205 CAACUAUU G UGAACGUU 1639 AACGUUGA GCCGAAGGGCGAGCCAAGGGUCA ACGAAUAA 2205 CAACUAUU G UGAUUCUU 1641 AAGUAAGA GCCGAAAGGCCGAAGGGCCAAGGGUCA AGUAUCUGGA 2222 CAUUUCCU G UCUUCUGAA 1642 UUCAAGAA GCCGAAAGGCCGAAGGGCCAAGGUCA AGUUUCUC 2245 GAGAAACU G UUCUUGAA 1642 UUCAAGAA GCCGAAAGGCCGAAGGCCAAGGUCA AGUUUCUC 2245 GACAAACU G UUCUUGAA 1642 UUCAAGAA GCCGAAAGGCCGAAGGCCAAGGUCA AGUUUCUC 2245 GACAAACU G UUCUUGAA 1642 CCAAAAGA GCCGAAAGGCCGAAGGCCAAGGUCA ACUCAAAAAA 2274 UUUGAGAGU G UGGAUUCG 1643 CCAAAAGA GCCGAAAGGCCGAAGGCCAAGGUCA ACUCCAAA 2274 UUUGAGAGU G UUGUUAGA 1645 UCUAACAA GCCGAAAGGCCGAAGGCCAAGGUCA ACUCCAAA 2344 AAACUACU G UUGUUAGA 1645 UCUAACAA GCCGAAAGGCCGAAGGCCAAGGUCA ACUCCAAA 2344 AAACUACU G UUGUUAGA 1645 UCUACAA GCCGAAAGGCCGAACGAGCCAAGGUCA ACCAAAUA 2450 AUCUCAAU G UUAGUAUU 1647 AAUACUAA GCCGAAAGGCCGAUCAAGGUCA AACAGUAG UCACCAAU G UUAGUAUU 1647 AAUACUAA GCCGAAAGGCCCAAGGUCAAGGUCA AUUGAGGAU 2583 UGAUAGAU G UUAGUAUU 1647 AAUACUAA GCCGAAAGGCCGAUCAAGGUCA AUUGAGAU 2594 AGCAAUU G UUAGUAUA 1649 AUUGCUUA GCCGAAAGGCCAAGGUCA AUUGAGAU 2594 AGCAAUU G UUACUAAA 1651 UUUAGUAA GCCGAAAGGCCGAGCAAGGUCA AUUGAGAU 2797 AGCACAUU G UUACUAAA 1651 UUUAGUAA GCCGAAAGGCCGAGCCAAGGUCA AACUCAAU 2797 AGCACAUU G UAGUUAAU 1652 AUUAACUA GCCGAAAGGCCGAGCCAAGGUCA AACUCAACCAAU G UAGUUAAU 1652 AUUACUA GCCGAAAGGCCGAGCCAAGGUCA AACUCAACCAAU G UAGUUAAU 1652 AUUAACUA GCCGAAAGGCCGAGCCAAGGUCA AACUCAACCAAC GUCAACCAAC GCGAAAGACCAACCAAC GUCAACCAAC GCGAAAGACCAACACACACA GUCAACACCAAC GCGAACACCAACCAACCAACCAACCAACC	9207 9208 9209 9210 9211 9212 9213 9214 9215 9216 9217 9218 9219
2082 GCUAUUCU G UGUUGGGG 1638 CACCCCAA GCCGAAAGGCGAGUCAAGGUCU AGAAUAGC 2167 UCAGCUAU G UUGGGGUG 1638 CACCCCAA GCCGAAAGGCGAGCAAGGUCU ACAGAAUA 2167 UCAGCUAU G UCAACGUU 1639 AACGUGA GCCGAAAGGCGAGUCAAGGUCU AUAGCUGA 2205 CAACUAUU G UGUUUCA 1640 UGAAACCA GCCGAAAGGCGAGCCAAGGUCU AUAGGUGA 2222 CAUUUCCU G UCUUGAA 1640 UGAAACCA GCCGAAAGGCGAGCCAAGGUCU AUAGGUGA 2222 CAUUUCCU G UCUUGAA 1642 UUCAAGAA GCCGAAAGGCCGAAGGCCAAGGUCU AGGAAAUG 2245 GAGAAACU G UUCUUGAA 1642 UUCAAGAA GCCGAAAGGCGAGCCAAGGUCU AGGAAAUG 2245 GAGAAACU G UUCUUGAA 1642 UUCAAGAA GCCGAAAGGCGAGCCAAGGUCU ACCCAAAUA 2274 UUUGGAGU G UCUUUGG 1644 CGAAUCCA GCCGAAAGGGCGAGCCAAGGUCU ACCCAAAUA 2274 UUUGGAGU G UUGUUAGA 1645 UCUAACAA GCCGAAAGGCGAGCCAAGGUCU ACCCAAAUA 2344 AAACUACU G UUGUUAGA 1645 UCUACCAA GCCGAAAGGCGAGCCCAAGGUCU AGUAGUUU 2347 CUACUGUU G UUAGACCA 1646 UCCUCUAA GCCGAAAGGCCAAGGUCU AGUAGUUU 2450 AUCUCAAU G UUAGUACAA 1646 UCCUCUAA GCCGAAAGGCCAAGGUCU AGUAGUGU 2450 AUCUCAAU G UUAGUAUCA 1647 AAUACUAA GCCGAAAGGCGAGCCAAGGUCU AUGAGCUC ACCAGUAG 2450 AUCUCAAU G UUAGUAUAA 1648 UCUAUCAA GCCGAAAGGCCAAGGUCU AUUGAGAU 2573 AGGACAUU G UUAGUAACA 1648 UCUAUCAA GCCGAAAGGCCAAGGUCU AUUGAGAU 2574 AGCAAUUU G UGGGGCCC 1650 GGGCCCCA GCCGAAAGGCCAAGGUCAAAGUCU AUUGAGAU 2574 AGCAAUUU G UGGGGCCC 1650 GGGCCCCA GCCGAAAGGCCAAGGUCAAGGUCU AUUGAGAU 2574 AGCAAUUU G UGGGGCCC 1650 GGGCCCCA GCCGAAAGGCCAAGGUCAAGGUCU AUUGAGAU 2574 AGCAAUUU G UGGGGCCC 1650 GGGCCCCA GCGCAAAGGCCAAGGUCAAGGUCU AUUGAGAU 2777 CAGAGUAU G UUACUAAA 1651 UUUAGUAA GCGGAAAGGCCAAGGUCAAGGUCA AGUACAAGCU 2777 CAGAGUAU G UACUAAA 1651 UUUAGGAG CCGAAAGGCCAAGGUCAAGGUCA AGUCAAGCAU 2777 CAGAGUAU G UACUAAA 1651 UUUAGGAG CCGAAAGGCCAAGGUCAAGGUCA AGUCAAGCA CCGAAAGAGAU CAAGCAA CACACCAACACAACA	9208 9209 9210 9211 9212 9213 9214 9215 9216 9217 9218 9219
2084 UNUUCUGU G UUGGGGUG 1638 CACCCCAA GCCgaaagGCGaGuCaaGGuCu ACAGAUA 2167 UCAGCUAU G UCAACGUU 1639 AACGUUGA GCCgaaagGCGaGuCaaGGuCu AUAGCUGA 2205 CAACUAUU G UGGUUUCA 1640 UGAAACCA GCCgaaagGCGaGuCaaGGuCu AUAGUUG 2222 CAUUUCCU G UCUUUCUGAA 1641 AAGUAAGA GCCgaaagGCGaGuCaaGGuCu AGGAAAUG 2245 GAGAAACU G UUCUUGAA 1642 UUCAAGAA GCCgaaagGCGaGuCaaGGuCu ACCAAAUA 2274 UUUGAGU G UGGAUUCG 1644 CCAAAAGA GCCgaaagGCGaGuCaaGGuCu ACCAAAUA 2344 AAACUACU G UUGUUAGA 1645 UCUAACAA GCCgaaagGCGaGuCaaGGuCu AGUAGUUU 2450 AUCUCAAU G UUGUUAGA 1646 UCGUCUAA GCCgaaagGCGaGuCaaGGuCu AGUAGUUU 2573 AGGACAUU G UUGUUAGA 1646 UCGUCUAA GCCgaaagGCGaGuCaaGGuCu AUUGAGAU 2583 UGAUCAAU G UUGAUAGA 1648 UCUAUCAA GCCgaaagGCGaGuCaaGGuCu AUUGAGAU 2594 AGCAAUUU G UUGAGCA 1649 AUUGCUUA GCCgaaagGCGaGuCaaGGuCu AUUGUUACA 2594 AGCAAUUU G UUGAGCA 1650 GGGCCCA GCCgaaagGCGaGuCaaGGuCu AUUGUACA 2593 AGCAAUUU G UGGGGGCC 1650 GGGGCCCA GCCgaaagGCGaGuCaaGGuCu AAUUGUAA	9209 9210 9211 9212 9213 9214 9215 9216 9217 9218 9219
2167 UCAGCUAU G UCAACGUU 1639 AACGUUGA GCCgaaagGCGaGuCaaGGuCu AUAGCUGA 2205 CAACUAUU G UGUUUCA 1640 UGAAACCA GCCgaaagGCGaGuCaaGGuCu AAUAGUUG 2222 CAUUUCCU G UCUUACUU 1641 AAGUAAGA GCCgaaagGCGaGuCaaGGuCu AGGAAAUG 2245 GAGAAACU G UUCUUGAA 1642 UUCAAGAA GCCgaaagGCGaGuCaaGGuCu AGUUUCUC 2262 UAUUUGGU G UCUUUUGG 1643 CCAAAAGA GCCgaaagGCGaGuCaaGGuCu ACUCCAAA 2274 UUUGGAGU G UGGAUUCG 1644 CGAAUCCA GCCgaaagGCGaGuCaaGGuCu ACUCCAAA 2344 AAACUAA G UUGUUAGA 1645 UCUAACAA GCCgaaagGCGaGuCaaGGuCu AGUAGUUU 2347 CUACUGUU G UUAGACGA 1646 UCGUCUAA GCCgaaagGCGaGuCaaGGuCu AUGAGAU 2450 AUCCAAAU G UUAGUAUA 1647 AUAUCCAA GCCgaaagGCGaGuCaaGGuCu AUGUAGAU 2573 AGGACAUU G UUGAUAGA 1648 UCUAUCAA GCCgaaagGCGaGuCaaGGuCu AUGUCCU 2583 UGAUAGAAU G UAACCAAU 1649 AUUGCUUA GCCgaaagGCGaGuCaaGGuCu AUCUAUCA 2594 AGCAAUUU G UGGGGCC 1650 GGGCCCCA GCCgaaagGCGaGuCaaGGuCu AUCUCUC 2663 AUCCCAAU G UUACUAAA 1651 UUUAGUAA GCCgaaagGCGaGuCaaGGuCu AUCUCUC </td <td>9210 9211 9212 9213 9214 9215 9216 9217 9218 9219</td>	9210 9211 9212 9213 9214 9215 9216 9217 9218 9219
2205 CAACUAUU G UGGUUCA 1640 UGAAACCA GCCgaaagGCGaGuCaaGGuCu AAUAGUUG 2222 CAUUUCCU G UCUUACUU 1641 AAGUAAGA GCCgaaagGCGaGuCaaGGuCu AGGAAAUG 2245 GAGAAACU G UUCUUGA 1642 UUCAAGAA GCCgaaagGCGaGuCaaGGuCu AGUUUCUC 2262 UAUUUGGU G UCUUUUGG 1643 CCAAAAGA GCCgaaagGCGaGuCaaGGuCu ACUAAUA 2274 UUUGGAGU G UGGAUUCG 1644 CGAAUCCA GCCgaaagGCGaGuCaaGGuCu ACUCCAAA 2344 AAACUACU G UUGUUAGA 1645 UCUAACAA GCCgaaagGCGaGuCaaGGuCu AGUAGUU 2347 CUACUGUU G UUAGACGA 1646 UCGUCUAA GCCgaaagGCGaGuCaaGGuCu AUGAGUAG 2450 AUCUCAAU G UUAGUAGA 1647 AAUACUAA GCCgaaagGCGaGuCaaGGuCu AUGAGAU 2573 AGGACAUU G UUAGUAGA 1649 AUUGCUAA GCCgaaagGCGaGuCaaGGuCu AUUGUCCU 2583 UGAUAGAU G UAAGCAU 1649 AUUGCUAA GCCgaaagGCGaGuCaaGGuCu AUUGUCCU 2594 AGCAAUUU G UGGGCCC 1650 GGGCCCCA GCCgaaagGCGaGuCaaGGuCu AUUUGCG 2663 AUCCCAAU G UUACUAAA 1651 UUUAGUAA GCCgaaagGCGaGuCaaGGuCu AUUUGGGAU 2717 CAGGAGACU G UUGUGGA 1654 CACCCCAA GCCgaaagGCGaGuCaaGGuCu AGAAAGAU <td>9211 9212 9213 9214 9215 9216 9217 9218 9219 9220</td>	9211 9212 9213 9214 9215 9216 9217 9218 9219 9220
2222 CAUUUCCU G UCUUACUU 1641 AAGUAAGA GCCGAAAGGCCCA AGGAAAUG 2245 GAGAAACU G UUCUUGAA 1642 UUCAAGAA GCCGAAAGGCCCAAGGCCCAAGGCCAAGACAACAACAACA	9212 9213 9214 9215 9216 9217 9218 9219 9220
2245 GAGAAACU G UUCUUGAA 1642 UUCAAGAA GCCGAAAGGUCUAGGUCU AGUUUUCUC 2262 UAUUUUGGU G UCUUUUUGG 1643 CCAAAAGA GCCGAAAGGAGCCAAGGUCUACCAAAUA 2274 UUUGGAGU G UGGAUUCG 1644 CGAAUCCA GCCGAAAGGAGCCAAGGUCUAACCAAAUA 2344 AAACUACU G UUGUUACA 1645 UCUAACAA GCCGAAAGGGCCAAGGUCUAAGGUCUAACAAA 244 AAACUACU G UUGUUACA 1646 UCUCUAACAA GCCGAAAGGGCGAGUCAAGGUCUAACAAGAAGUCUAACAA GCCGAAAGGCCAAGGUCUAAGGUCUAACAAGAAGACAA 1646 UCUCUCAAA GCCGAAAGGCCGAGUCAAGGUCUAACAAGAAGAACAA 2450 AUCUCAAU G UUAGUAUACA 1647 AAUACUAA GCCGAAAGGCCGAACAAGGUCUAACAAGAAGAU G UUAGUAUCAA 1648 UCUAUCAA GCCGAAAGGCCCAAGGUCAAACUACAA AUUUGAGAU C 2583 UGAUAGAAU G UUAGCAAU 1648 UCUAUCAA GCCGAAAGGCCCAAGGUCUAAUUCACA 2594 AGCAAUUU G UUACCAAA 1659 AUUGCCUUA GCCGAAAGGCCCAACACAAU AUUUCCU 2583 UGAUAGAAU G UUACUAAAA 1651 UUUAGUAA GCCGAAAGGCCCAACACAAU G UUACUAAAA 1651 UUUAGUAA GCCGAAAGGCCCAACAAU G UUACUAAAA 1651 UUUAGUAA GCCGAAAGGCCCAACAAU G UUACUAAAA 1651 UUUAGUAA GCCGAAAGGCCCAAGGCCCAAUCAAGGACCAAU G UUACUAAAA 1651 UUUAGUAA GCCGAAAGGCCCAAGGCCCAAUCAAGGACCAAU G UCCCCCAAU 1652 AUUAACUA GCCGAAAGGCCCAAGGCCCAAUCAAGAGAU 3071 GGGGGGACU G UCCCCCAAU 1653 AUUGGGAA GCCGAAAGGCCCAAGGCCCAACACACACACACAC	9213 9214 9215 9216 9217 9218 9219 9220
2262 UAUUUGGU G UCUUUUGG 1643 CCAAAAGA GCCgaaagGCGaGuCaaGGuCu ACCAAAUA 2274 UUUGGAGU G UGGAUUCG 1644 CGAAUCCA GCCgaaagGCGaGuCaaGGuCu ACUCCAAA 2344 AAACUACU G UUGUUAGA 1645 UCUAACAA GCCgaaagGCGaGuCaaGGuCu AGUAGUU 2347 CUACUGUU G UUAGACGA 1646 UCGUCUAA GCCgaaagGCGaGuCaaGGuCu AUGAGAU 2450 AUCUCAAU G UUAGUAUU 1647 AAUACUAA GCCgaaagGCGaGuCaaGGuCu AUUGAGAU 2573 AGGACAUU G UUGAUAGA 1648 UCUAUCAA GCCgaaagGCGaGuCaaGGuCu AUUGAGAU 2573 AGGACAUU G UUAGACAU 1649 AUUGCUUA GCCgaaagGCGaGuCaaGGuCu AUUCUAUCA 2594 AGCAAUUU G UGGGGCCC 1650 GGGCCCCA GCCgaaagGCGaGuCaaGGuCu AUUCGCU 2663 AUCCCAAU G UUACUAAA 1651 UUUAGUAA GCCgaaagGCGaGuCaaGGuCu AUUCGGAU 2717 CAGAGUAU G UAGUUAAU 1652 AUUAACUA GCCgaaagGCGaGuCaaGGuCu AUACUCUG 2901 AUCUUUCU G UCCCCAAU 1653 AUUGGGGA GCCgaaagGCGaGuCaaGGuCu AGUCCCC 3111 UCACAACU G UGCAGCA 1655 UGCUGGCA GCCgaaagGCGaGuCaaGGuCu AGUCCCC 40 AUCCCCAA G UGCAGGC 1656 GGCCCUGA GCCgaaagGCGaGuCaaGGuCu UCCGGAC	9214 9215 9216 9217 9218 9219 9220
2274 UUUGGAGU G UGGAUUCG 1644 CGAAUCCA GCCgaaagGCGaGuCaaGGuCu ACUCCAAA 2344 AAACUACU G UUGUUAGA 1645 UCUAACAA GCCgaaagGCGaGuCaaGGuCu AGUAGUUU 2347 CUACUGUU G UUAGACGA 1646 UCGUCUAA GCCgaaagGCGaGuCaaGGuCu AACAGUAG 2450 AUCUCAAU G UUAGUAUU 1647 AAUACUAA GCCgaaagGCGaGuCaaGGuCu AACAGUAG 2573 AGGACAUU G UUGAUAGA 1648 UCUAUCAA GCCgaaagGCGaGuCaaGGuCu AUUGAGAU 2573 AGGACAUU G UUGAUAGA 1649 AUUGCUAA GCCgaaagGCGaGuCaaGGuCu AUUGAGAU 2584 AGCAAUUU G UGGGGCCC 1650 GGGCCCCA GCCgaaagGCGaGuCaaGGuCu AAUUGCCU 2663 AUCCCAAU G UUACUAAA 1651 UUUAGUAA GCCgaaagGCGaGuCaaGGuCu AAAUUGCU 2663 AUCCCAAU G UUACUAAA 1651 UUUAGUAA GCCgaaagGCGaGuCaaGGuCu AAAUUGCU 2717 CAGAGUUU G UAGUAAA 1652 AUUAGUA GCCgaaagGCGaGuCaaGGuCu AUAUGGGAU 2717 CAGAGUUU G UGGGGCC 1653 AUUGGGA GCCgaaagGCGaGuCaaGGuCu AUACUCUG 2901 AUCUUUCU G UCCCCAAU 1653 AUUGGGA GCCgaaagGCGaGuCaaGGuCu AGAAAGAU 3071 GGGGGACU G UUGGGGUG 1654 CACCCCAA GCCgaaagGCGaGuCaaGGuCu AGAAAGAU 3071 GGGGGACU G UUGGGGUG 1654 CACCCCAA GCCgaaagGCGaGuCaaGGuCu AGUUGUGA 40 AUCCCAGA G UGAGGGC 1655 UGCUGGCA GCCgaaagGCGaGuCaaGGuCu CUCUGGGAU 46 GAGUCAGG G CCCUGUAC 1655 UGCUGGCA GCCgaaagGCGaGuCaaGGuCu UCUGGGAU 46 GAGUCAGG G CCCUGUAC 1657 GUACAGGG GCCgaaagGCGaGuCaaGGuCu CUGGGAU 46 GAGUCAGG G CCCUGUAC 1657 GUACAGGG GCCgaaagGCGaGuCaaGGuCu CUGGGAU 46 GAGUCAGG G CCCUGGUC 1656 GGCCCUGA GCCgaaagGCGaGuCaaGGuCu CCGCAGGA 40 UCCUGCUG G UGGCUCCA 1658 UGGAGCCA GCCgaaagGCGaGuCaaGGuCu CCGCAGGA 46 GAGUCAGG G CCCUGGUC 1665 GGCCCUGAA GCCgaaagGCGaGuCaaGGuCu UCGGGACA 474 UGGCUCCA G UUCAGGAA 1660 UUCCUGAA GCCgaaagGCGaGuCaaGGuCu UGAGCCA 48 DGCUGCAG G UCCAGGU 1661 AAGGUCA GCCgaaagGCGaGuCaaGGuCu UGAGCCA 49 AACAGGGA G CCCUGCUC 1662 GAGCAGGG GCCgaaagGCGaGuCaaGGuCu UGAGCCA 49 AACAGGGA G CCCUGCUC 1662 GAGCAGGG GCCgaaagGCGaGuCaaGGuCu UGACCAGGA 40 CCCACAGA G UGAACCCU 1663 AAGAUUGA GCCgaaagGCGaGuCaaGGuCu UGACCAGGA 40 CCCCACAGA G UGAACCCU 1664 CUGUAACA GCCgaaagGCGaGuCaaGGuCu UGACCAGGA 40 CCCCACAGA G UGAACCCU 1666 AAGAAAA GCCgaaagGCGaGuCaaGGuCu CCCGCCUG 40 CAGGCGG G UUUUCUU 1666 AAGAAAAA GCCgaaagGCGaGuCaaGGuCu CCCGCCUG 40 CAGGCGG G UUUUCCUG C	9215 9216 9217 9218 9219 9220
2344 AAACUACU G UUGUUAGA 1645 UCUAACAA GCCGAAAGGGCGAGUCAAGGUCU AGUAGUUU 2347 CUACUGUU G UUAGACGA 1646 UCGUCUAA GCCGAAAGGCGAGUCAAGGUCU AACAGUAG 2450 AUCUCAAU G UUAGUAUU 1647 AAUACUAA GCCGAAAGGCGAGUCAAGGUCU AACAGUAG 2573 AGGACAUU G UUGAUAGA 1648 UCUAUCAA GCCGAAAGGCGAGUCAAGGUCU AAUGUCCU 2583 UGAUAGAU G UAAGCAAU 1649 AUUGCUUA GCCGAAAGGCGAGUCAAGGUCU AUCUAUCA 2594 AGCAAUUU G UGGGGCCC 1650 GGGCCCCA GCCGAAAGGGCCAAAAUUGCU 2663 AUCCCAAU G UUACUAAA 1651 UUUAGUAA GCCGAAAGGCGAGUCAAGGUCU AAUUGCU 27717 CAGAGUAU G UACUAAA 1651 UUUAGUAA GCCGAAAGGCGAGUCAAGGUCU AUUGAGAU 27717 CAGAGUAU G UACUAAA 1651 UUUAGUAA GCCGAAAGGCGAGUCAAGGUCU AUUGAGAU 27717 CAGAGUAU G UACUAAA 1652 AUUAACUA GCCGAAAGGCGAGUCAAGGUCU AUUGGAU 3071 GGGGGACU G UUGGGGCC 3111 UCACAACU G UGCCAGCA 1653 AUUGGGGA GCCGAAAGGCGAGUCAAGGUCU AGAAAGAU 3071 GGGGGACU G UUGGGGUC 1654 CACCCCAA GCCGAAAGGCGAGUCAAGGUCU AGAAAGAU 3071 GGGGGACU G UGGCAGCA 1655 UGCUGGCA GCCGAAAGGCC 3111 UCACAACU G UGCCAGCA 1655 UGCUGGCA GCCGAAAGGCCAAGGUCU AGUUGUGA 40 AUCCCAGA G UCAGGGCC 1656 GGCCCUGA GCCGAAAGGCCAAGGUCU CUGGGAU 46 GAGUCAGG G CCCUGUAC 65 UCCUGCUG G UGCCAGCU 1657 GUACAGGG GCCGAAAGGCCAAGGUCU CCUGACUC 65 UCCUGCUG G UGCCAGUU 1659 AACUGGAG GCCGAAAGGCCAAGGUCU CACCAGCA 68 UGCUGGUG G UUCAGGAA 1658 UGCAGCCA GCCGAAAGGCCAAGGUCU CACCAGCA 74 UGGCUCCA G UUCAGGAA 1660 UUCCUGAA GCCGAAAGGCCA UCAAGGACCA UCACAGCA 85 CAGGAACA G UGAGCCCU 1661 AGGGCUCA GCCGAAAGGCCA UGAAGGUCU UGGACCA 85 CAGGAACA G UGAGCCCU 1662 GAGCAGGG GCCGAAAGGCACAAGGUCU UGGACCA 85 CAGGAACA G UGAGCCCU 1661 AGGGCUCA GCCGAAAGGCCAAGGUCAAGGUCU UGACCCA 86 CCCUGCUC G UGUUACAG 1664 CUGUAACA GCCGAAAGGCACAAGGUCU UGACCACA 1666 AAGAAAAA GCCGAAAGGCGAGCACAAGGUCU UGACCAGCA 1667 AGGACAGG GCCGAAAGGCCAAGGUCAAGGUCU UGACCACACACACACACACACACACACACACACACACACA	9216 9217 9218 9219 9220
2347 CUACUGUU G UUAGACGA 1646 UCGUCUAA GCCGAAAGGCGAGUCAAGGUCU AACAGUAG 2450 AUCUCAAU G UUAGUAUU 1647 AAUACUAA GCCGAAAGGCGAGUCAAGGUCU AUUGAGAU 1647 AAUACUAA GCCGAAAGGCGAGUCAAGGUCU AUUGAGAU 2573 AGGACAUU G UUGAUAGA 1648 UCUAUCAA GCCGAAAGGCGAGUCAAGGUCU AUUGUCCU 2583 UGAUAGAU G UAAGCAAU 1649 AUUGCUUA GCCGAAAGGCGAGUCAAGGUCU AUCUAUCA 2594 AGCAAUUU G UGGGGCCC 1650 GGGCCCCA GCCGAAAGGCGAGUCAAGGUCU AUUGAGAU 2663 AUCCCAAU G UUACUAAA 1651 UUUAGUAA GCCGAAAGGCGAGUCAAGGUCU AUUGGGAU 2717 CAGAGUAU G UAGUUAAU 1652 AUUAACUA GCCGAAAGGCGAGUCAAGGUCU AUUGGGAU 2901 AUCUUCU G UCCCCAAU 1653 AUUGGGA GCCGAAGGCGAGUCAAGGUCU AGAAAGAU 3071 GGGGGACU G UUGGGGU 1653 AUUGGGA GCCGAAGGCGAGCAAGGUCU AGUCCCCC 3111 UCACAACU G UGCCAGCA 1655 UGCUGGCA GCCGAAAGGCGAGUCAAGGUCU AGUCCCCC 3111 UCACAACU G UGCCAGCA 1655 UGCUGGCA GCCGAAAGGCGAGUCAAGGUCU UCUGGGAU 46 GAGUCAGG CCCUGUAC 1657 GUACAGGG GCCGAAAGGCCAAGGUCU UCUGGGAU 46 GAGUCAGG CCCUGUAC 1657 GUACAGGG GCCGAAAGGCCAAGGUCU CUGGGAU 665 UGCUGCGG GCCCGAAGGCCAAGGUCU CCUGACUC 1658 UGGAGCCA GCCGAAAGGCGAGUCAAGGUCU CAGCAGGA 68 UGCUGGUG G UGCUCCA 1658 UGGAGCCA GCCGAAAGGCGAGUCAAGGUCU CAGCAGGA 68 UGCUGGUG G UGCCACCU 1659 AACUGGAG GCCGAAAGGCGAGUCAAGGUCU CAGCAGGA 68 UGCUGGUG G UUCAGGAU 1659 AACUGGAG GCCGAAAGGCCAAGGUCU CAGCAGCA 685 CAGGAACA G UUCAGGAA 1660 UUCCUGAA GCCGAAAGGCGAGUCAAGGUCU CACCAGCA 685 CAGGAACA G UGAGCCCU 1661 AGGGCCA GCCGAAAGGCGAGUCAAGGUCU UGGAGCCA 685 CAGGAACA G UGAGCCCU 1661 AGGGCCA GCCGAAAGGCGAGUCAAGGUCU UGGAGCCA 661 AGGAACA G UGAGCCCU 1662 GAGCAGGG GCCGAAAGGCGAGCAAGGUCU UGUUCCUG 69 AACAGUGA G CCCUGCUC 1662 GAGCAGGG GCCGAAAGGCGAGCAAGGUCU UGAACCA CCGAAGGAG CCCUGCUC G UGUACAG G CCGAACAGG GCGGAACAAGGUCU UGAACA GCGAAAGACA G UGAACCCG GCGGAUCAAGGCCAAGGCCAAGGCCAAGGCCAAGGCCAAGGCCAAGGCCAAGGCCAAGGCCAAGGCCAAGGCCAAGGCCAAGGCCAAGGCACAAGGCCAAGGCCAAGGCCAAGGCAAGGCCAAGGCAAGGCCAAGGCCAAGGCCAAGGCCAAGGCCAAGGCCAAGGCCAAGGCCAAGGCCAAGGCCAAGGCAAGGCCA	9217 9218 9219 9220
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2573 AGGACAUU G UUGAUAGA 1648 UCUAUCAA GCCgaaagGCGaGuCaaGGuCu AAUGUCCU 2583 UGAUAGAU G UAAGCAAU 1649 AUUGCUUA GCCgaaagGCGaGuCaaGGuCu AUCUAUCA 2594 AGCAAUUU G UGGGGCCC 1650 GGGCCCCA GCCgaaagGCGaGuCaaGGuCu AAUUGCU 2663 AUCCCAAU G UUACUAAA 1651 UUUAGUAA GCCgaaagGCGaGuCaaGGuCu AUUGGGAU 2717 CAGAGUAU G UAGUUAAU 1652 AUUAACUA GCCgaaagGCGaGuCaaGGuCu AUACUCUG 2901 AUCUUUCU G UCCCCAAU 1653 AUUGGGA GCCgaaagGCGaGuCaaGGuCu AGAAAGAU 3071 GGGGGACU G UUGGGGUG 1654 CACCCCAA GCCgaaagGCGaGuCaaGGuCu AGUCCCCC 3111 UCACAACU G UGCCAGCA 1655 UGCUGGCA GCCgaaagGCGaGuCaaGGuCu AGUCGCCC 3111 UCACAACU G UGCGGCC 1656 GGCCCUGA GCCgaaagGCGaGuCaaGGuCu AGUCGCCC 46 GAGUCAGG G CCCUGUAC 1657 GUACAGGG GCCgaaagGCGaGuCaaGGuCu UCUGGGAU 46 GAGUCAGG G CCCUGUAC 1657 GUACAGGG GCCgaaagGCGaGuCaaGGuCu CCUGACUC 65 UCCUGCUG G UGGCUCCA 1658 UGGAGCCA GCCgaaagGCGaGuCaaGGuCu CCUGACUC 66 UGCUGGUG G CUCCAGUU 1659 AACUGGAG GCCgaaagGCGaGuCaaGGuCu CACCAGCA 74 UGGCUCCA G UUCAGGAA 1660 UUCCUGAA GCCgaaagGCGaGuCaaGGuCu UGGAGCCA 85 CAGGAACA G UGAGCCCU 1661 AGGGCUCA GCCgaaagGCGaGuCaaGGuCu UGGAGCCA 85 CAGGAACA G UGAGCCCU 1661 AGGGCUCA GCCgaaagGCGaGuCaaGGuCu UGUUCCUG 89 AACAGUGA G CCCUGCUC 1662 GAGCAGGG GCCgaaagGCGaGuCaaGGuCu UCACUGUU 120 GCCAUAUC G UCAAUCUU 1663 AAGAUUGA GCCgaaagGCGaGuCaaGGuCu GAUAUGGC 196 CCCUGCUC G UGUUACAG 1664 CUGUAACA GCCgaaagGCGaGuCaaGGuCu GACAGGG 205 UGUUACAG CCGGGGUUU 1665 AAACCCCC GCCgaaagGCGaGuCaaGGuCu CUGUAACA 210 CAGGCGGG G UUUUUCUU 1666 AAGAAAAA GCCgaaagGCGaGuCaaGGuCu CUGUAACA 210 CAGGCGGG G UUUUUCUU 1666 AAGAAAAA GCCgaaagGCGaGuCaaGGuCu CCCGCCUG 248 ACCACAGA G UCUAGACU 1667 AGUCACA GCCgaaagGCGaGuCaaGGuCu CCCGCCUG 248 ACCACAGA G UCUAGACU 1667 AGUCACA GCCgaaagGCGaGuCaaGGuCu GAGUCUAG	9219 9220
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AGCAAUUU G UGGGGCCC 1650 GGGCCCCA GCCgaaagGCGaGuCaaGGuCu AAAUUGCU 2663 AUCCCAAU G UUACUAAA 1651 UUUAGUAA GCCgaaagGCGaGuCaaGGuCu AUUGGGAU 2717 CAGAGUAU G UAGUUAAU 1652 AUUAACUA GCCgaaagGCGaGuCaaGGuCu AUACUCUG 2901 AUCUUCU G UCCCCAAU 1653 AUUGGGGA GCCgaaagGCGaGuCaaGGuCu AGAAAGAU 3071 GGGGGACU G UUGGGGUG 1654 CACCCCAA GCCgaaagGCGaGuCaaGGuCu AGAAAGAU 3071 UCACAACU G UGCCAGCA 1655 UGCUGGCA GCCgaaagGCGaGuCaaGGuCu AGUCCCCC 3111 UCACAACU G UGCCAGCA 1655 UGCUGGCA GCCgaaagGCGaGuCaaGGuCu AGUUGUGA 40 AUCCCAGA G UCAGGGCC 1656 GGCCCUGA GCCgaaagGCGaGuCaaGGuCu UCUGGGAU 46 GAGUCAGG G CCCUGUAC 1657 GUACAGGG GCCgaaagGCGaGuCaaGGuCu UCUGGGAU 46 GAGUCAGG G CCCUGUAC 1658 UGGAGCCA GCCgaaagGCGaGuCaaGGuCu CCUGACUC 65 UCCUGCUG G UGGCUCCA 1658 UGGAGCCA GCCgaaagGCGaGuCaaGGuCu CACCAGCA 68 UGCUGGU G UUCAGGAA 1660 UUCCUGAA GCCgaaagGCGaGuCaaGGuCu CACCAGCA 74 UGGCUCCA G UUCAGGAA 1660 UUCCUGAA GCCgaaagGCGaGuCaaGGuCu UGGAGCCA 85 CAGGAACA G UGAGCCCU 1661 AGGGCUCA GCCgaaagGCGaGuCaaGGuCu UGUUCCUG 89 AACAGUGA G CCCUGCUC 1662 GAGCAGGG GCCgaaagGCGaGuCaaGGuCu UGUUCCUG 89 AACAGUGA G CCCUGCUC 1662 GAGCAGGG GCCgaaagGCGaGuCaaGGuCu UCACUGUU 120 GCCAUAUC G UCAAUCUU 1663 AAGAUUGA GCCgaaagGCGaGuCaaGGuCu UCACUGUU 120 GCCAUAUC G UCAAUCUU 1663 AAGAUUGA GCCgaaagGCGaGuCaaGGuCu UAUAUGGC 196 CCCUGCUC G UGUUACAG 1664 CUGUAACA GCCgaaagGCGaGuCaaGGuCu GAUAUGGC 1664 CUGUAACA GCCgaaagGCGaGuCaaGGuCu CUGUAACA 1666 AAGAAAAA GCCgaaagGCGaGuCaaGGuCu CUGUAACA 1667 AACCCCC GCCgaaagGCGaGuCaaGGuCu CUGUAACA 1668 AAACCCCC GCCgaaagGCGaGuCaaGGuCu CUGUAACA 1668 AAACCCCG GCCgaaagGCGaGuCaaGGuCu CCCGCCUG 1668 AAACCCCG GCCgaaagGCGaGuCaaGGuCu CCCGCCUG 1668 AAACCCCG GCCgaaagGCGaGuCaaGGuCu CCCGCCUG 1668 GUCCACCA GCCgaaagGCGaGuCaaGGuCu CCCGCCUG 1668 GUCCACCA GCCgaaagGCGaGuCaaGGuCu CCCGCCUG 1668 GUCCACCA GCCgaaagGCGaGuCaaGGuCu CCCGCCUG 1668 GUCCACCA GCCGAGGGC GUCAAGGUC CCCGCCUG GCGaaagGCGaGuCaaGGuCu CCCGCCUG GCGaaagGCGaGuCaaGGuCu CCCGCCUG 1668 GUCCACCA GCCGAGGGC GCCGAAGGCCA GCCCACAGGC GCCCACAGGC GCCCACAGGC GCCCACAGGC GCCCACAGGCC GCCCACAGGC GCCCACAGGCC GCCCACAGGCC GCCCACAGCCCA GCCCACAGCCCA GCCCACAG	
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2717 CAGAGUAU G UAGUUAAU 1652 AUUAACUA GCCGaaagGCGaGuCaaGGuCu AUACUCUG 2901 AUCUUUCU G UCCCCAAU 1653 AUUGGGGA GCCgaaagGCGaGuCaaGGuCu AGAAAGAU 3071 GGGGACU G UUGGGGUG 1654 CACCCCAA GCCgaaagGCGaGuCaaGGuCu AGUCCCCC 3111 UCACAACU G UGCCAGCA 1655 UGCUGGCA GCCgaaagGCGaGuCaaGGuCu AGUUGUGA 40 AUCCCAGA G UCAGGGCC 1656 GGCCCUGA GCCgaaagGCGaGuCaaGGuCu UCUGGGAU 46 GAGUCAGG G CCCUGUAC 1657 GUACAGGG GCCgaaagGCGaGuCaaGGuCu CCUGACUC 65 UCCUGCUG G UGGCUCCA 1658 UGGAGCCA GCCgaaagGCGaGuCaaGGuCu CAGCAGGA 68 UGCUGGUG G CUCCAGUU 1659 AACUGGAG GCCgaaagGCGaGuCaaGGuCu CACCAGCA 74 UGGCUCCA G UUCAGGAA 1660 UUCCUGAA GCCgaaagGCGaGuCaaGGuCu UGGAGCCA 85 CAGGAACA G UGAGCCCU 1661 AGGGCUCA GCCgaaagGCGaGuCaaGGuCu UGUUCCUG 89 AACAGUGA G CCCUGCUC 1662 GAGCAGG GCCgaaagGCGaGuCaaGGuCu UCACUGUU 120 GCCAUAUC G UCAAUCUU 1663 AAGAUUGA GCCgaaagGCGaGuCaaGGuCu UCACUGUU 120 GCCAUAUC G UCAAUCUU 1663 AAGAUUGA GCCgaaagGCGaGuCaaGGuCu GAUAUGGC 196 CCCUGCUC G UGUUACAG 1664 CUGUAACA GCCgaaagGCGaGuCaaGGuCu GAUAUGGC 196 CCCUGCUC G UGUUACAG 1664 CUGUAACA GCCgaaagGCGaGuCaaGGuCu GAUAUGGC 205 UGUUACAG G CGGGGUUU 1665 AAACCCCG GCCgaaagGCGaGuCaaGGuCu CGGCAGGG 206 CCAUAUCUU 1666 AAGAAAAA GCCgaaagGCGaGuCaaGGuCu CUGUAACA 210 CAGGCGGG G UUUUUCUU 1666 AAGAAAAA GCCgaaagGCGaGuCaaGGuCu CCCGCCUG 248 ACCACAGA G UCUAGACU 1667 AGUCUAGA GCCgaaagGCGaGuCaaGGuCu CCCGCCUG 248 ACCACAGA G UCUAGACU 1667 AGUCUAGA GCCgaaagGCGaGuCaaGGuCu CCCGCCUG 248 ACCACAGA G UCUAGACU 1667 AGUCUAGA GCCgaaagGCGaGuCaaGGuCu CCCGCCUG 248 ACCACAGA G UCUAGACU 1668 GUCCACCA GCCgaaagGCGaGuCaaGGuCu GAGUCUAG	9222
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3071 GGGGGACU G UUGGGGUG 1654 CACCCCAA GCcgaaagGCGaGuCaaGGuCu AGUCCCCC 3111 UCACAACU G UGCCAGCA 1655 UGCUGGCA GCcgaaagGCGaGuCaaGGuCu AGUUGUGA 40 AUCCCAGA G UCAGGGCC 1656 GGCCCUGA GCcgaaagGCGaGuCaaGGuCu UCUGGGAU 46 GAGUCAGG G CCCUGUAC 1657 GUACAGGG GCcgaaagGCGaGuCaaGGuCu CCUGACUC 65 UCCUGCUG G UGGCUCCA 1658 UGGAGCCA GCcgaaagGCGaGuCaaGGuCu CACCAGCA 68 UGCUGGUG G CUCCAGUU 1659 AACUGGAG GCcgaaagGCGaGuCaaGGuCu CACCAGCA 74 UGGCUCCA G UUCAGGAA 1660 UUCCUGAA GCcgaaagGCGaGuCaaGGuCu UGGAGCCA 85 CAGGAACA G UGAGCCU 1661 AGGGCUCA GCcgaaagGCGaGuCaaGGuCu UGGUCCUG 89 AACAGUGA G CCCUGCUC 1662 GAGCAGGG GCcgaaagGCGaGuCaaGGuCu UCACUGUU 120 GCCAUAUC G UCAAUCUU 1663 AAGAUUGA GCcgaaagGCGaGuCaaGGuCu GAUAUGGC 196 CCCUGCUC G UGUUACAG 1664 CUGUAACA GCcgaaagGCGaGuCaaGGuCu GAUAUGGC 1205 UGUUACAG G CGGGGUUU 1665 AAACCCCG GCcgaaagGCGaGuCaaGGuCu CACCAGGG 205 UGUUACAG G CGGGGUUU 1665 AAACCCCG GCcgaaagGCGaGuCaaGGuCu CUGUAACA 210 CAGGCGGG G UUUUUCUU 1666 AAGAAAAA GCcgaaagGCGaGuCaaGGuCu CCCGCCUG 248 ACCACAGA G UCUAGACU 1667 AGUCUAGA GCcgaaagGCGaGuCaaGGuCu UCUGUGGU 248 ACCACAGA G UCUAGACU 1668 GUCCACCA GCcgaaagGCGaGuCaaGGuCu UCUGUGGU 258 CUAGACUC G UGGUGGAC 1668 GUCCACCA GCcgaaagGCGaGuCaaGGuCu UCUGUGGU 258 CUAGACUC G UGGUGGAC 1668 GUCCACCA GCcgaaagGCGaGuCaaGGuCu GAGCUAG	9224
3111 UCACAACU G UGCCAGCA 1655 UGCUGGCA GCCgaaagGCGaGuCaaGGuCu AGUUGUGA 40 AUCCCAGA G UCAGGGCC 1656 GGCCCUGA GCCgaaagGCGaGuCaaGGuCu UCUGGGAU 46 GAGUCAGG G CCCUGUAC 1657 GUACAGGG GCCgaaagGCGaGuCaaGGuCu CCUGACUC 65 UCCUGCUG G UGGCUCCA 1658 UGGAGCCA GCCgaaagGCGaGuCaaGGuCu CAGCAGGA 68 UGCUGGUG G CUCCAGUU 1659 AACUGGAG GCCgaaagGCGaGuCaaGGuCu CACCAGCA 74 UGGCUCCA G UUCAGGAA 1660 UUCCUGAA GCCgaaagGCGaGuCaaGGuCu UGUUCCUG 85 CAGGAACA G UGAGCCCU 1661 AGGGCUCA GCCgaaagGCGaGuCaaGGuCu UGUUCCUG 89 AACAGUGA G CCCUGCUC 1662 GAGCAGGG GCCgaaagGCGaGuCaaGGuCu UCACUGUU 120 GCCAUAUC G UCAAUCUU 1663 AAGAUUGA GCCgaaagGCGaGuCaaGGuCu GAUAUGGC 196 CCCUGCUC G UGUUACAG 1664 CUGUAACA GCCgaaagGCGaGuCaaGGuCu GAUAUGGC 205 UGUUACAG G CGGGGUUU 1665 AAACCCCG GCCgaaagGCGaGuCaaGGuCu CUGUAACA 210 CAGGCGGG G UUUUUCUU 1666 AAGAAAAA GCCgaaagGCGaGuCaaGGuCu CCCGCCUG 248 ACCACAGA G UCUAGACU 1667 AGUCUAGA GCCgaaagGCGaGuCaaGGuCu UCUGUGGU 258 CUAGACUC G UGUUGGAC 1668 GUCCACCA GCCgaaagGCGaGuCaaGGuCu UCUGUGGU	9225
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89 AACAGUGA G CCCUGCUC 1662 GAGCAGGG GCCgaaagGCGaGuCaaGGuCu UCACUGUU 120 GCCAUAUC G UCAAUCUU 1663 AAGAUUGA GCCgaaagGCGaGuCaaGGuCu GAUAUGGC 196 CCCUGCUC G UGUUACAG 1664 CUGUAACA GCCgaaagGCGaGuCaaGGuCu GAGCAGGG 205 UGUUACAG G CGGGGUUU 1665 AAACCCCG GCCgaaagGCGaGuCaaGGuCu CUGUAACA 210 CAGGCGGG G UUUUUCUU 1666 AAGAAAAA GCCgaaagGCGaGuCaaGGuCu CCCGCCUG 248 ACCACAGA G UCUAGACU 1667 AGUCUAGA GCCgaaagGCGaGuCaaGGuCu UCUGUGGU 258 CUAGACUC G UGGUGGAC 1668 GUCCACCA GCCgaaagGCGaGuCaaGGuCu GAGUCUAG	9232
120 GCCAUAUC G UCAAUCUU 1663 AAGAUUGA GCCGAAAGGUCAAGGUCU GAUAUGGC 196 CCCUGCUC G UGUUACAG 1664 CUGUAACA GCCGAAAGGCGAGUCAAGGUCU GAGCAGGG 205 UGUUACAG G CGGGGUUU 1665 AAACCCCG GCCGAAAGGCGGGUCAAGGUCU CUGUAACA 210 CAGGCGGG G UUUUUCUU 1666 AAGAAAAA GCCGAAAGGCGGUCAAGGUCU CCCGCCUG 248 ACCACAGA G UCUAGACU 1667 AGUCUAGA GCCGAAAGGCGAGUCAAGGUCU UCUGUGGU 258 CUAGACUC G UGGUGGAC 1668 GUCCACCA GCCGAAAGGCGAGUCAAGGUCU GAGUCUAG	9233
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258 CUAGACUC G UGGUGGAC 1668 GUCCACCA GCCgaaagGCGaGuCaaGGuCu GAGUCUAG	9238
261 CARTICONIC C. MOCA CITYO C. CARTICON CO.	9239
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	9241
205 CHICKETTIC C. COLDANIEL	9242
210 ANTIGORA O MOGRAPHY	9243
222 ANTONICA C MONOTICA C CONTRACTOR CONTRAC	9244
260 INTOVOCTO O UNIVERSE DE LA CONTRACTOR DE LA CONTRACTO	9245
200 HOUSING CONTRACTOR AND	9246
TOTAL TIME CONTROL OF THE PROPERTY OF THE PROP	9247
AAS UCTICITIES O INCOMENTAL CONTRACTOR OF CO	9248
ACT CURVICING O UNIVERSIGE CONTROL CON	
ATO TOTALOGO O INTROLOGO A CONTRACTOR AND ACCOUNT OF THE PROPERTY OF THE PROPE	9249
TOC ANGRAGO G GROCOGRO	9249 9250
COE CALCUTTO C CETTOCCA LICENSIA C CONTROL CO CO CO CONTROL CO	
CAR CUNICOCK O HOCCOCKIO	9250
CES COCRACIOS O CONTRACIO CONTRACIO CONTRACIONO CONTRA	9250 9251
658 GGGCCUCA G UCCGUUUC 1684 GAAACGGA GCcgaaagGCGaGuCaaGGuCu UGAGGCCC	9250 9251 9252

662	CUCAGUCC G UUUCUCUU	1685	AAGAGAAA GCcgaaagGCGaGuCaaGGuCu GGACUGAG	9256
672	UUCUCUUG G CUCAGUUU	1686	AAACUGAG GCcgaaagGCGaGuCaaGGuCu CAAGAGAA	9257
677	UUGGCUCA G UUUACUAG	1687	CUAGUAAA GCcgaaagGCGaGuCaaGGuCu UGAGCCAA	9258
685	GUUUACUA G UGCCAUUU	1688	AAAUGGCA GCcgaaagGCGaGuCaaGGuCu UAGUAAAC	9259
699	UUUGUUCA G UGGUUCGU	1689	ACGAACCA GCcgaaagGCGaGuCaaGGuCu UGAACAAA	9260
702	GUUCAGUG G UUCGUAGG	1690	CCUACGAA GCcgaaagGCGaGuCaaGGuCu CACUGAAC	9261
706	AGUGGUUC G UAGGGCUU	1691	AAGCCCUA GCcgaaagGCGaGuCaaGGuCu GAACCACU	9262
711	UUCGUAGG G CUUUCCCC	1692	GGGGAAAG GCcgaaagGCGaGuCaaGGuCu CCUACGAA	9263
729	ACUGUCUG G CUUUCAGU	1693	ACUGAAAG GCcgaaagGCGaGuCaaGGuCu CAGACAGU	9264
736	GGCUUUCA G UUAUAUGG	1694	CCAUAUAA GCcgaaagGCGaGuCaaGGuCu UGAAAGCC	9265
753	AUGAUGUG G UUUUGGGG	1695	CCCCAAAA GCcgaaagGCGaGuCaaGGuCu CACAUCAU	9266
762	UUUUGGGG G CCAAGUCU	1696	AGACUUGG GCcgaaagGCGaGuCaaGGuCu CCCCAAAA	9267
767	GGGGCCAA G UCUGUACA	1697	UGUACAGA GCcgaaagGCGaGuCaaGGuCu UUGGCCCC	9268
785	CAUCUUGA G UCCCUUUA	1698	UAAAGGGA GCcgaaagGCGaGuCaaGGuCu UCAAGAUG	9269
826	GUCUUUGG G UAUACAUU	1699	AAUGUAUA GCcgaaagGCGaGuCaaGGuCu CCAAAGAC	9270
898	AAUUGGGA G UUGGGGCA	1700	UGCCCCAA GCcgaaagGCGaGuCaaGGuCu UCCCAAUU	9271
904	GAGUUGGG G CACAUUGC	1701	GCAAUGUG GCcgaaagGCGaGuCaaGGuCu CCCAACUC	9272
971	GUAAACAG G CCUAUUGA	1702	UCAAUAGG GCcgaaagGCGaGuCaaGGuCu CUGUUUAC	9273
987	AUUGGAAA G UAUGUCAA	1703	UUGACAUA GCcgaaagGCGaGuCaaGGuCu UUUCCAAU	9274
1006	AAUUGUGG G UCUUUUGG	1704	CCAAAAGA GCcgaaagGCGaGuCaaGGuCu CCACAAUU	9275
1016	CUUUUGGG G UUUGCCGC	1705	GCGGCAAA GCcgaaagGCGaGuCaaGGuCu CCCAAAAG	9276
1080	GCAUACAA G CAAAACAG	1706	CUGUUUUG GCcgaaagGCGaGuCaaGGuCu UUGUAUGC	9277
1089	CAAAACAG G CUUUUACU	1707	AGUAAAAG GCcgaaagGCGaGuCaaGGuCu CUGUUUUG	9278
1116	CUUACAAG G CCUUUCUA	1708	UAGAAAGG GCcgaaagGCGaGuCaaGGuCu CUUGUAAG	9279
1126	CUUUCUAA G UAAACAGU	1709	ACUGUUUA GCcgaaagGCGaGuCaaGGuCu UUAGAAAG	9280
1133	AGUAAACA G UAUGUGAA	1710	UUCACAUA GCcgaaagGCGaGuCaaGGuCu UGUUUACU	9281
1152	UUUACCCC G UUGCUCGG	1711	CCGAGCAA GCcgaaagGCGaGuCaaGGuCu GGGGUAAA	9282
1160	GUUGCUCG G CAACGGCC	1712	GGCCGUUG GCcgaaagGCGaGuCaaGGuCu CGAGCAAC	9283
1166	CGGCAACG G CCUGGUCU	1713	AGACCAGG GCcgaaagGCGaGuCaaGGuCu CGUUGCCG	9284
1171	ACGGCCUG G UCUAUGCC	1714	GGCAUAGA GCcgaaagGCGaGuCaaGGuCu CAGGCCGU	9285
1182	UAUGCCAA G UGUUUGCU	1715	AGCAAACA GCcgaaagGCGaGuCaaGGuCu UUGGCAUA	9286
1207	CCCCACUG G UUGGGGCU	1716	AGCCCCAA GCcqaaaqGCGaGuCaaGGuCu CAGUGGGG	9287
1213	UGGUUGGG G CUUGGCCA	1717	UGGCCAAG GCcgaaagGCGaGuCaaGGuCu CCCAACCA	9288
1218	GGGGCUUG G CCAUAGGC	1718	GCCUAUGG GCcgaaagGCGaGuCaaGGuCu CAAGCCCC	9289
1225	GGCCAUAG G CCAUCAGC	1719	GCUGAUGG GCcgaaagGCGaGuCaaGGuCu CUAUGGCC	9290
1232	GGCCAUCA G CGCAUGCG	1720	CGCAUGCG GCcgaaagGCGaGuCaaGGuCu UGAUGGCC	9291
1240	GCGCAUGC G UGGAACCU	1721	AGGUUCCA GCcgaaagGCGaGuCaaGGuCu GCAUGCGC	
1287	AACUCCUA G CCGCUUGU	1722	ACAAGCGG GCcgaaagGCGaGuCaaGGuCu UAGGAGUU	9292
1306	UGCUCGCA G CAGGUCUG	1723	CAGACCUG GCcgaaagGCGaGuCaaGGuCu UGCGAGCA	9294
1310	CGCAGCAG G UCUGGGGC	1724	GCCCCAGA GCcgaaaqGCGaGuCaaGGuCu CUGCUGCG	9295
1317	GGUCUGGG G CAAAACUC	1725	GAGUUUUG GCcgaaagGCGaGuCaaGGuCu CCCAGACC	9296
1347	AUUCUGUC G UGCUCUCC	1726	GGAGAGCA GCcgaaagGCGaGuCaaGGuCu GACAGAAU	9297
1379	UUUCCAUG G CUGCUAGG	1727	CCUAGCAG GCcgaaagGCGaGuCaaGGuCu CAUGGAAA	9298
1387	GCUGCUAG G CUGUGCUG	1728	CAGCACAG GCcgaaagGCGaGuCaaGGuCu CUAGCAGC	9299
1418	CGCGGGAC G UCCUUUGU	1729	ACAAAGGA GCcgaaagGCGaGuCaaGGuCu GUCCCGCG	9300
1431	UUGUUUAC G UCCCGUCG	1730	CGACGGGA GCcgaaagGCGaGuCaaGGuCu GUAAACAA	9300
1436	UACGUCCC G UCGGCGCU	1731	AGCGCCGA GCcgaaagGCGaGuCaaGGuCu GGGACGUA	9301
1440	UCCCGUCG G CGCUGAAU	1731	AUUCAGCG GCcgaaagGCGaGuCaaGGuCu CGACGGGA	
1471	CUCCCGGG G CCGCUUGG	1732	CCAAGCGG GCcgaaagGCGaGuCaaGGuCu CCCGGGAG	9303
1481	CGCUUGGG G CUCUACCG	1734	CGGUAGAG GCcgaaagGCGaGuCaaGGuCu CCCAAGCG	9304
1517	UACCGACC G UCCACGGG		CCCGUGGA GCcgaaagGCGaGuCaaGGuCu GGUCGGUA	9305
	CLICCOACC O OCCACGGG	1735	CCCCCCC. CCCGuagaccaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaa	9306

1526	UCCACGGG G CGCACCUC	1000	GAGGUGCG GCcgaaagGCGaGuCaaGGuCu CCCGUGGA	0305
1526	GACUCCCC G UCUGUGCC	1736	GGCACAGA GCcgaaagGCGaGuCaaGGuCu GGGGAGUC	9307
1579	GCCGGACC G UGUGCACU	1737 1738	AGUGCACA GCcgaaagGCGaGuCaaGGuCu GGUCCGGC	9308
1605	CUCUGCAC G UCGCAUGG		CCAUGCGA GCcgaaagGCGaGuCaaGGuCu GUGCAGAG	9309
1622	AGACCACC G UGAACGCC	1739	GGCGUUCA GCcgaaagGCGaGuCaaGGuCu GGUGGUCU	9310
1649	UGCCCAAG G UCUUGCAU	1740	AUGCAAGA GCcgaaagGCGaGuCaaGGuCu CUUGGGCA	9311
1679	GACUUUCA G CAAUGUCA	1741	UGACAUUG GCcgaaagGCGaGuCaaGGuCu UGAAAGUC	9312
1703	ACCUUGAG G CAUACUUC	1742 1743	GAAGUAUG GCcgaaagGCGaGuCaaGGuCu CUCAAGGU	9313
1732	UUUAAUGA G UGGGAGGA		UCCUCCCA GCcgaaagGCGaGuCaaGGuCu UCAUUAAA	9314
1741	UGGGAGGA G UUGGGGGA	1744	UCCCCCAA GCcgaaagGCGaGuCaaGGuCu UCCUCCCA	9315
1754	GGGAGGAG G UUAGGUUA	1745	UAACCUAA GCcgaaagGCGaGuCaaGGuCu CUCCUCCC	9316
1759	GAGGUUAG G UUAAAGGU	1746	ACCUUUAA GCcgaaagGCGaGuCaaGGuCu CUAACCUC	9317
1766	GGUUAAAG G UCUUUGUA	1747	UACAAAGA GCcgaaagGCGaGuCaaGGuCu CUUUAACC	9318
1782	ACUAGGAG G CUGUAGGC	1748		9319
1789	GGCUGUAG G CAUAAAUU	1749	GCCUACAG GCcgaaagGCGaGuCaaGGuCu CUCCUAGU AAUUUAUG GCcgaaagGCGaGuCaaGGuCu CUACAGCC	9320
1799	AUAAAUUG G UGUGUUCA	1750	UGAACACA GCcgaaagGCGaGuCaaGGuCu CAAUUUAU	9321
1811	GUUCACCA G CACCAUGC	1751		9322
1870	CUGUUCAA G CCUCCAAG	1752	GCAUGGUG GCcgaaagGCGaGuCaaGGuCu UGGUGAAC	9323
1878	GCCUCCAA G CUGUGCCU	1753	CUUGGAGG GCcgaaagGCGaGuCaaGGuCu UUGAACAG AGGCACAG GCcgaaagGCGaGuCaaGGuCu UUGGAGGC	9324
1890	UGCCUUGG G UGGCUUUG	1754		9325
1893	CUUGGGUG G CUUUGGGG	1755	CAAAGCCA GCcgaaagGCGaGuCaaGGuCu CCAAGGCA	9326
1901	GCUUUGGG G CAUGGACA	1756	CCCCAAAG GCcgaaagGCGaGuCaaGGuCu CACCCAAG UGUCCAUG GCcgaaagGCGaGuCaaGGuCu CCCAAAGC	9327
1917	AUUGACCC G UAUAAAGA	1757	UCUUUAUA GCcgaaagGCGaGuCaaGGuCu GGGUCAAU	9328
1933	AAUUUGGA G CUUCUGUG	1758		9329
1944	UCUGUGGA G UUACUCUC	1759	CACAGAAG GCcgaaagGCGaGuCaaGGuCu UCCAAAUU	9330
2023	AUCGGGGG G CCUUAGAG	1760	GAGAGUAA GCcgaaagGCGaGuCaaGGuCu UCCACAGA	9331
2023	GCCUUAGA G UCUCCGGA	1761	CUCUAAGG GCcgaaagGCGaGuCaaGGuCu CCCCCGAU	9332
2062	ACCAUACG G CACUCAGG	1762	UCCGGAGA GCcgaaagGCGaGuCaaGGuCu UCUAAGGC CCUGAGUG GCcgaaaqGCGaGuCaaGGuCu CGUAUGGU	9333
2070	GCACUCAG G CAAGCUAU	1763	AUAGCUUG GCcgaaagGCGaGuCaaGGuCu CUGAGUGC	9334
2074	UCAGGCAA G CUAUUCUG	1764		9335
2074	GUGUUGGG G UGAGUUGA	1765	CAGAAUAG GCcgaaagGCGaGuCaaGGuCu UUGCCUGA UCAACUCA GCcgaaagGCGaGuCaaGGuCu CCCAACAC	9336
2094	UGGGGUGA G UUGAUGAA	1766	UUCAUCAA GCcgaaagGCGaGuCaaGGuCu UCACCCCA	9337
2107	UGAAUCUA G CCACCUGG	1767	CCAGGUGG GCcgaaagGCGaGuCaaGGuCu UAGAUUCA	9338
2116	CCACCUGG G UGGGAAGU	1768	ACUUCCCA GCcgaaagGCGaGuCaaGGuCu CCAGGUGG	9339
2123	GGUGGGAA G UAAUUUGG	1769	CCAAAUUA GCcgaaagGCGaGuCaaGGuCu UUCCCACC	9340
2140	AAGAUCCA G CAUCCAGG	1770	CCUGGAUG GCcgaaagGCGaGuCaaGGuCu UGGAUCUU	9341
2155	GGGAAUUA G UAGUCAGC	1771	GCUGACUA GCcgaaagGCGaGuCaaGGuCu UAAUUCCC	9342
2158	AAUUAGUA G UCAGCUAU	1772	AUAGCUGA GCcgaaagGCGaGuCaaGGuCu UACUAAUU	9343
2162	AGUAGUCA G CUAUGUCA	1773 1774	UGACAUAG GCcgaaagGCGaGuCaaGGuCu UGACUACU	9344
2173	AUGUCAAC G UUAAUAUG	1775	CAUAUUAA GCcgaaagGCGaGuCaaGGuCu GUUGACAU	9345
2183	UAAUAUGG G CCUAAAAA	1776	UUUUUAGG GCcgaaagGCGaGuCaaGGuCu CCAUAUUA	9346
2208	CUAUUGUG G UUUCACAU	1777	AUGUGAAA GCcgaaagGCGaGuCaaGGuCu CACAAUAG	9347
2235	ACUUUUGG G CGAGAAAC	1778	GUUUCUCG GCcgaaagGCGaGuCaaGGuCu CCAAAAGU	9348
2260	AAUAUUUG G UGUCUUUU	1779	AAAAGACA GCcgaaagGCGaGuCaaGGuCu CAAAUAUU	9349
2272	CUUUUGGA G UGUGGAUU	1780	AAUCCACA GCcgaaagGCGaGuCaaGGuCu UCCAAAAG	9350
2360	ACGAAGAG G CAGGUCCC	1781	GGGACCUG GCcgaaagGCGaGuCaaGGuCu CUCUUCGU	9351
2364	AGAGGCAG G UCCCCUAG	1781	CUAGGGA GCcgaaagGCGaGuCaaGGuCu CUGCCUCU	9352
2403	AGACGAAG G UCUCAAUC		GAUUGAGA GCcgaaagGCGaGuCaaGGuCu CUUCGUCU	9353
2417	AUCGCCGC G UCGCAGAA	1783 1784	UUCUGCGA GCcgaaagGCGaGuCaaGGuCu GCGGCGAU	9354
2454	CAAUGUUA G UAUUCCUU	1784	AAGGAAUA GCcgaaagGCGaGuCaaGGuCu UAACAUUG	9355
2474	CACAUAAG G UGGGAAAC		GUUUCCCA GCcgaaagGCGaGuCaaGGuCu CUUAUGUG	9356
/-	C.L.D. C. COCCAPAC	1786	Sobotton Staget aggle aggle aggle COUAUGUG	9357

2491	UUUACGGG G CUUUAUUC	1787	GAAUAAAG GCcgaaagGCGaGuCaaGGuCu CCCGUAAA	9358
2507	CUUCUACG G UACCUUGC	1788	GCAAGGUA GCcgaaagGCGaGuCaaGGuCu CGUAGAAG	9359
2530	CCUAAAUG G CAAACUCC	1789	GGAGUUUG GCcgaaagGCGaGuCaaGGuCu CAUUUAGG	9360
2587	AGAUGUAA G CAAUUUGU	1790	ACAAAUUG GCcgaaagGCGaGuCaaGGuCu UUACAUCU	9361
2599	UUUGUGGG G CCCCUUAC	1791	GUAAGGGG GCcgaaagGCGaGuCaaGGuCu CCCACAAA	9362
2609	CCCUUACA G UAAAUGAA	1792	UUCAUUUA GCcgaaagGCGaGuCaaGGuCu UGUAAGGG	9363
2650	CCUGCUAG G UUUUAUCC	1793	GGAUAAAA GCcgaaagGCGaGuCaaGGuCu CUAGCAGG	9364
2701	AUCAAACC G UAUUAUCC	1794	GGAUAAUA GCcgaaagGCGaGuCaaGGuCu GGUUUGAU	9365
2713	UAUCCAGA G UAUGUAGU	1795	ACUACAUA GCcgaaagGCGaGuCaaGGuCu UCUGGAUA	9366
2720	AGUAUGUA G UUAAUCAU	1796	AUGAUUAA GCcgaaagGCGaGuCaaGGuCu UACAUACU	9367
2768	UUUGGAAG G CGGGGAUC	1797	GAUCCCCG GCcgaaagGCGaGuCaaGGuCu CUUCCAAA	9368
2791	AAAAGAGA G UCCACACG	1798	CGUGUGGA GCcgaaagGCGaGuCaaGGuCu UCUCUUUU	9369
2799	GUCCACAC G UAGCGCCU	1799	AGGCGCUA GCcgaaagGCGaGuCaaGGuCu GUGUGGAC	9370
2802	CACACGUA G CGCCUCAU	1800	AUGAGGCG GCcgaaagGCGaGuCaaGGuCu UACGUGUG	9371
2818	UUUUGCGG G UCACCAUA	1801	UAUGGUGA GCcgaaagGCGaGuCaaGGuCu CCGCAAAA	9372
2848	GAUCUACA G CAUGGGAG	1802	CUCCCAUG GCcgaaagGCGaGuCaaGGuCu UGUAGAUC	9373
2857	CAUGGGAG G UUGGUCUU	1803	AAGACCAA GCcgaaagGCGaGuCaaGGuCu CUCCCAUG	9374
2861	GGAGGUUG G UCUUCCAA	1804	UUGGAAGA GCcgaaagGCGaGuCaaGGuCu CAACCUCC	9375
2881	UCGAAAAG G CAUGGGGA	1805	UCCCCAUG GCcgaaagGCGaGuCaaGGuCu CUUUUCGA	9376
2936	GAUCAUCA G UUGGACCC	1806	GGGUCCAA GCcgaaagGCGaGuCaaGGuCu UGAUGAUC	9377
2955	CAUUCAAA G CCAACUCA	1807	UGAGUUGG GCcgaaagGCGaGuCaaGGuCu UUUGAAUG	9378
2964	CCAACUCA G UAAAUCCA	1808	UGGAUUUA GCcgaaagGCGaGuCaaGGuCu UGAGUUGG	9379
3005	GACAACUG G CCGGACGC	1809	GCGUCCGG GCcgaaagGCGaGuCaaGGuCu CAGUUGUC	9380
3021	CCAACAAG G UGGGAGUG	1810	CACUCCCA GCcgaaagGCGaGuCaaGGuCu CUUGUUGG	9381
3027	AGGUGGGA G UGGGAGCA	1811	UGCUCCCA GCcgaaagGCGaGuCaaGGuCu UCCCACCU	9382
3033	GAGUGGGA G CAUUCGGG	1812	CCCGAAUG GCcgaaagGCGaGuCaaGGuCu UCCCACUC	9383
3041	GCAUUCGG G CCAGGGUU	1813	AACCCUGG GCcgaaagGCGaGuCaaGGuCu CCGAAUGC	9384
3047	GGGCCAGG G UUCACCCC	1814	GGGGUGAA GCcgaaagGCGaGuCaaGGuCu CCUGGCCC	9385
3077	CUGUUGGG G UGGAGCCC	1815	GGGCUCCA GCcgaaagGCGaGuCaaGGuCu CCCAACAG	9386
3082	GGGGUGGA G CCCUCACG	1816	CGUGAGGG GCcgaaagGCGaGuCaaGGuCu UCCACCCC	9387
3097	CGCUCAGG G CCUACUCA	1817	UGAGUAGG GCcgaaagGCGaGuCaaGGuCu CCUGAGCG	9388
3117	CUGUGCCA G CAGCUCCU	1818	AGGAGCUG GCcgaaagGCGaGuCaaGGuCu UGGCACAG	9389
3120	UGCCAGCA G CUCCUCCU	1819	AGGAGGAG GCcgaaagGCGaGuCaaGGuCu UGCUGGCA	9390
3146	ACCAAUCG G CAGUCAGG	1820	CCUGACUG GCcgaaagGCGaGuCaaGGuCu CGAUUGGU	9391
3149	AAUCGGCA G UCAGGAAG	1821	CUUCCUGA GCcgaaagGCGaGuCaaGGuCu UGCCGAUU	9392
3158	UCAGGAAG G CAGCCUAC	1822	GUAGGCUG GCcgaaagGCGaGuCaaGGuCu CUUCCUGA	9393
3161	GGAAGGCA G CCUACUCC	1823	GGAGUAGG GCcgaaagGCGaGuCaaGGuCu UGCCUUCC	9394
3204	AUCCUCAG G CCAUGCAG	1824	CUGCAUGG GCcgaaagGCGaGuCaaGGuCu CUGAGGAU	9395

Input Sequence = AF100308. Cut Site = YG/M or UG/U.
Stem Length = 8 . Core Sequence = GCcgaaagGCGaGuCaaGGuCu
AF100308 (Hepatitis B virus strain 2-18, 3215 bp)

TABLE IX: HUMAN HBV DNAZYME AND SUBSTRATE SEQUENCE

Pos	Substrate	Seq ID	DNAzyme	Seq ID
508	CAACCAGC A CCGGACCA	833	TGGTCCGG GGCTAGCTACAACGA GCTGGTTG	9396
1632	GAACGCCC A CAGGAACC	1096	GGTTCCTG GGCTAGCTACAACGA GGGCGTTC	9397
2992	CAACCCGC A CAAGGACA	1376	TGTCCTTG GGCTAGCTACAACGA GCGGGTTG	9398
61	ACUUUCCU G CUGGUGGC	1448	GCCACCAG GGCTAGCTACAACGA AGGAAAGT	9399
94	UGAGCCCU G CUCAGAAU	1450	ATTCTGAG GGCTAGCTACAACGA AGGGCTCA	9400
112	CUGUCUCU G CCAUAUCG	1451	CGATATGG GGCTAGCTACAACGA AGAGACAG	9401
169	AGAACAUC G CAUCAGGA	1454	TCCTGATG GGCTAGCTACAACGA GATGTTCT	9402
192	GGACCCCU G CUCGUGUU	1455	AACACGAG GGCTAGCTACAACGA AGGGGTCC	9403
315	CAAAAUUC G CAGUCCCA	1457	TGGGACTG GGCTAGCTACAACGA GAATTTTG	9404
374	UGGUUAUC G CUGGAUGU	1458	ACATCCAG GGCTAGCTACAACGA GATAACCA	9405
387	AUGUGUCU G CGGCGUUU	1459	AAACGCCG GGCTAGCTACAACGA AGACACAT	9406
410	CUUCCUCU G CAUCCUGC	1460	GCAGGATG GGCTAGCTACAACGA AGAGGAAG	9407
417	UGCAUCCU G CUGCUAUG	1461	CATAGCAG GGCTAGCTACAACGA AGGATGCA	9408
420	AUCCUGCU G CUAUGCCU	1462	AGGCATAG GGCTAGCTACAACGA AGCAGGAT	9409
425	GCUGCUAU G CCUCAUCU	1463	AGATGAGG GGCTAGCTACAACGA ATAGCAGC	9410
468	GGUAUGUU G CCCGUUUG	1464	CAAACGGG GGCTAGCTACAACGA AACATACC	9411
518	CGGACCAU G CAAAACCU	1465	AGGTTTTG GGCTAGCTACAACGA ATGGTCCG	9412
527	CAAAACCU G CACAACUC	1466	GAGTTGTG GGCTAGCTACAACGA AGGTTTTG	9413
538	CAACUCCU G CUCAAGGA	1467	TCCTTGAG GGCTAGCTACAACGA AGGAGTTG	9414
569	CUCAUGUU G CUGUACAA	1468	TTGTACAG GGCTAGCTACAACGA AACATGAG	9415
596	CGGAAACU G CACCUGUA	1469	TACAGGTG GGCTAGCTACAACGA AGTTTCCG	9416
631	GGGCUUUC G CAAAAUAC	1470	GTATTTTG GGCTAGCTACAACGA GAAAGCCC	9417
687	UUACUAGU G CCAUUUGU	1471	ACAAATGG GGCTAGCTACAACGA ACTAGTAA	9418
795	CCCUUUAU G CCGCUGUU	1474	AACAGCGG GGCTAGCTACAACGA ATAAAGGG	9419
798	UUUAUGCC G CUGUUACC	1475	GGTAACAG GGCTAGCTACAACGA GGCATAAA	9420
911	GGCACAUU G CCACAGGA	1476	TCCTGTGG GGCTAGCTACAACGA AATGTGCC	9421
1020	negegnin e ccecccn	1479	AGGGCGG GGCTAGCTACAACGA AAACCCCA	9422
1023	GGUUUGCC G CCCCUUUC	1480	GAAAGGGG GGCTAGCTACAACGA GGCAAACC	9423
1034	CCUUUCAC G CAAUGUGG	1481	CCACATTG GGCTAGCTACAACGA GTGAAAGG	9424
1050	GAUAUUCU G CUUUAAUG	1482	CATTAAAG GGCTAGCTACAACGA AGAATATC	9425
1058	GCUUUAAU G CCUUUAUA	1483	TATAAAGG GGCTAGCTACAACGA ATTAAAGC	9426
1068	CUUUAUAU G CAUGCAUA	1484	TATGCATG GGCTAGCTACAACGA ATATAAAG	9427
1072	AUAUGCAU G CAUACAAG	1485	CTTGTATG GGCTAGCTACAACGA ATGCATAT	9428
1103	ACUUUCUC G CCAACUUA	1486	TAAGTTGG GGCTAGCTACAACGA GAGAAAGT	9429
1155	ACCCCGUU G CUCGGCAA	1488	TTGCCGAG GGCTAGCTACAACGA AACGGGGT	9430
1177	UGGUCUAU G CCAAGUGU	1489	ACACTTGG GGCTAGCTACAACGA ATAGACCA	9431
1188	AAGUGUUU G CUGACGCA	1490	TGCGTCAG GGCTAGCTACAACGA AAACACTT	9432
1194	UUGCUGAC G CAACCCCC	1492	GGGGGTTG GGCTAGCTACAACGA GTCAGCAA	9433
1234	CCAUCAGC G CAUGCGUG	1493	CACGCATG GGCTAGCTACAACGA GCTGATGG	9434
1238	CAGCGCAU G CGUGGAAC	1494	GTTCCACG GGCTAGCTACAACGA ATGCGCTG	9435
1262	UCUCCUCU G CCGAUCCA	1495	TGGATCGG GGCTAGCTACAACGA AGAGGAGA	9436
1275	UCCAUACC G CGGAACUC	1497	GAGTTCCG GGCTAGCTACAACGA GGTATGGA	9437
1290	UCCUAGCC G CUUGUUUU	1498	AAAACAAG GGCTAGCTACAACGA GGCTAGGA	9438
1299	CUUGUUUU G CUCGCAGC	1499	GCTGCGAG GGCTAGCTACAACGA AAAACAAG	9439
1303	UUUUGCUC G CAGCAGGU	1500	ACCTGCTG GGCTAGCTACAACGA GAGCAAAA	9440
1349	UCUGUCGU G CUCUCCCG	1502	CGGGAGAG GGCTAGCTACAACGA ACGACAGA	9441
1357	GCUCUCCC G CAAAUAUA	1503	TATATTTG GGCTAGCTACAACGA GGGAGAGC	9442

[1300]	GONTAGOTT C. CLIN GOOTG		CARCOTTA C COCTACATA CA ACCO ACCOATTCC	
1382	CCAUGGCU G CUAGGCUG	1504	CAGCCTAG GGCTAGCTACAACGA AGCCATGG	9443
1392	UAGGCUGU G CUGCCAAC	1505	GTTGGCAG GGCTAGCTACAACGA ACAGCCTA	9444
1395	GCUGUGCU G CCAACUGG	1506	CCAGTTGG GGCTAGCTACAACGA AGCACAGC	9445
1411	GAUCCUAC G CGGGACGU	1507	ACGTCCCG GGCTAGCTACAACGA GTAGGATC	9446
1442	CCGUCGGC G CUGAAUCC	1508	GGATTCAG GGCTAGCTACAACGA GCCGACGG	9447
1452	UGAAUCCC G CGGACGAC	1510	GTCGTCCG GGCTAGCTACAACGA GGGATTCA	9448
1474	CCGGGGCC G CUUGGGGC	1512	GCCCCAAG GGCTAGCTACAACGA GGCCCCGG	9449
1489	GCUCUACC G CCCGCUUC	1513	GAAGCGGG GGCTAGCTACAACGA GGTAGAGC	9450
1493	UACCGCCC G CUUCUCCG	1514	CGGAGAAG GGCTAGCTACAACGA GGGCGGTA	9451
1501	GCUUCUCC G CCUAUUGU	1515	ACAATAGG GGCTAGCTACAACGA GGAGAAGC	9452
1528	CACGGGGC G CACCUCUC	1517	GAGAGGTG GGCTAGCTACAACGA GCCCCGTG	9453
1542	CUCUUUAC G CGGACUCC	1518	GGAGTCCG GGCTAGCTACAACGA GTAAAGAG	9454
1559	CCGUCUGU G CCUUCUCA	1519	TGAGAAGG GGCTAGCTACAACGA ACAGACGG	9455
1571	UCUCAUCU G CCGGACCG	1520	CGGTCCGG GGCTAGCTACAACGA AGATGAGA	9456
1583	GACCGUGU G CACUUCGC	1521	GCGAAGTG GGCTAGCTACAACGA ACACGGTC	9457
1590	UGCACUUC G CUUCACCU	1522	AGGTGAAG GGCTAGCTACAACGA GAAGTGCA	9458
1601	UCACCUCU G CACGUCGC	1523	GCGACGTG GGCTAGCTACAACGA AGAGGTGA	9459
1608	UGCACGUC G CAUGGAGA	1524	TCTCCATG GGCTAGCTACAACGA GACGTGCA	9460
1628	CCGUGAAC G CCCACAGG	1526	CCTGTGGG GGCTAGCTACAACGA GTTCACGG	9461
1642	AGGAACCU G CCCAAGGU	1527	ACCTTGGG GGCTAGCTACAACGA AGGTTCCT	9462
1654	AAGGUCUU G CAUAAGAG	1528	CTCTTATG GGCTAGCTACAACGA AAGACCTT	9463
1818	AGCACCAU G CAACUUUU	1533	AAAAGTTG GGCTAGCTACAACGA ATGGTGCT	9464
1835	UCACCUCU G CCUAAUCA	1534	TGATTAGG GGCTAGCTACAACGA AGAGGTGA	9465
1883	CAAGCUGU G CCUUGGGU	1535	ACCCAAGG GGCTAGCTACAACGA ACAGCTTG	9466
1959	UCUUUUUU G CCUUCUGA	1537	TCAGAAGG GGCTAGCTACAACGA AAAAAAGA	9467
2002	UCGACACC G CCUCUGCU	1541	AGCAGAGG GGCTAGCTACAACGA GGTGTCGA	9468
2008	CCGCCUCU G CUCUGUAU	1542	ATACAGAG GGCTAGCTACAACGA AGAGGCGG	9469
2282	GUGGAUUC G CACUCCUC	1548	GAGGAGTG GGCTAGCTACAACGA GAATCCAC	9470
2293	CUCCUCCU G CAUAUAGA	1549	TCTATATG GGCTAGCTACAACGA AGGAGGAG	9471
2311	CACCAAAU G CCCCUAUC	1550	GATAGGGG GGCTAGCTACAACGA ATTTGGTG	9472
2388	ACUCCCUC G CCUCGCAG	1552	CTGCGAGG GGCTAGCTACAACGA GAGGGAGT	9473
2393	CUCGCCUC G CAGACGAA	1553	TTCGTCTG GGCTAGCTACAACGA GAGGCGAG	9474
2412	UCUCAAUC G CCGCGUCG	1555	CGACGCGG GGCTAGCTACAACGA GATTGAGA	9475
2415	CAAUCGCC G CGUCGCAG	1556	CTGCGACG GGCTAGCTACAACGA GGCGATTG	9476
2420	GCCGCGUC G CAGAAGAU	1557	ATCTTCTG GGCTAGCTACAACGA GACGCGGC	9477
2514	GGUACCUU G CUUUAAUC	1558	GATTAAAG GGCTAGCTACAACGA AAGGTACC	9478
2560	AUUCAUUU G CAGGAGGA	1560	TCCTCCTG GGCTAGCTACAACGA AAATGAAT	9479
2641	UUAACUAU G CCUGCUAG	1563	CTAGCAGG GGCTAGCTACAACGA ATAGTTAA	9480
2645	CUAUGCCU G CUAGGUUU	1564	AAACCTAG GGCTAGCTACAACGA AGGCATAG	9481
2677	AAAUAUUU G CCCUUAGA	1565	TCTAAGGG GGCTAGCTACAACGA AAATATTT	9482
2740	UUCCAGAC G CGACAUUA	1566	TAATGTCG GGCTAGCTACAACGA GTCTGGAA	9483
2804	CACGUAGC G CCUCAUUU	1568	AAATGAGG GGCTAGCTACAACGA GCTACGTG	9484
2814	CUCAUUUU G CGGGUCAC	1569	GTGACCCG GGCTAGCTACAACGA AAAATGAG	9485
2946	UGGACCCU G CAUUCAAA	1572	TTTGAATG GGCTAGCTACAACGA AGGGTCCA	9486
2990	CUCAACCC G CACAAGGA	1573	TCCTTGTG GGCTAGCTACAACGA GGGTTGAG	9487
3012	GGCCGGAC G CCAACAAG	1574	CTTGTTGG GGCTAGCTACAACGA GTCCGGCC	9488
3090	GCCCUCAC G CUCAGGGC	1575	GCCTGAG GGCTAGCTACAACGA GTGAGGGC	9489
3113	ACAACUGU G CCAGCAGC	1576	GCTGCTGG GGCTAGCTACAACGA ACAGTTGT	
3132	CUCCUCCU G CCUCCACC	1577	GGTGGAGG GGCTAGCTACAACGA AGGAGGAG	9490
51	AGGCCCU G UACUUUCC		GGAAAGTA GGCTAGCTACAACGA AGGGCCCT	9491
106	AGAAUACU G UCUCUGCC	1578	GGCAGAGA GGCTAGCTACAACGA AGGACCT	9492
		1579	SOCIONAL SOCIACIACHA AGIATICI	9493

148	GGGACCCU G UACCGAAC	1500	GTTCGGTA GGCTAGCTACAACGA AGGGTCCC	2424
198	CUGCUCGU G UUACAGGC	1580	GCCTGTAA GGCTAGCTACAACGA ACGAGCAG	9494
219	UUUUUCUU G UUGACAAA	1581	TTTGTCAA GGCTAGCTACAACGA AAGAAAAA	9495
297	ACACCCGU G UGUCUUGG	1582	CCAAGACA GGCTAGCTACAACGA ACGGGTGT	9496
299	ACCCGUGU G UCUUGGCC	1583	GGCCAAGA GGCTAGCTACAACGA ACACGGGT	9497
347	ACCAACCU G UUGUCCUC	1584	GAGGACAA GGCTAGCTACAACGA ACACGGGT GAGGACAA GGCTAGCTACAACGA AGGTTGGT	9498
	AACCUGUU G UCCUCCAA	1585	TTGGAGGA GGCTAGCTACAACGA AGGTTGGT	9499
350		1586		9500
362	UCCAAUUU G UCCUGGUU CGCUGGAU G UGUCUGCG	1587	AACCAGGA GGCTAGCTACAACGA AAATTGGA	9501
381		1588	CGCAGACA GGCTAGCTACAACGA ATCCAGCG	9502
383	CUGGAUGU G UCUGCGGC	1589	GCCGCAGA GGCTAGCTACAACGA ACATCCAG	9503
438	AUCUUCUU G UUGGUUCU	1590	AGAACCAA GGCTAGCTACAACGA AAGAAGAT	9504
465	CAAGGUAU G UUGCCCGU	1591	ACGGCAA GGCTAGCTACAACGA ATACCTTG	9505
476	GCCCGUUU G UCCUCUAA	1592	TTAGAGGA GGCTAGCTACAACGA AAACGGGC	9506
555	ACCUCUAU G UUUCCCUC	1593	GAGGGAAA GGCTAGCTACAACGA ATAGAGGT	9507
566	UCCCUCAU G UUGCUGUA	1594	TACAGCAA GGCTAGCTACAACGA ATGAGGGA	9508
572	AUGUUGCU G UACAAAAC	1595	GTTTTGTA GGCTAGCTACAACGA AGCAACAT	9509
602	CUGCACCU G UAUUCCCA	1596	TGGGAATA GGCTAGCTACAACGA AGGTGCAG	9510
694	UGCCAUUU G UUCAGUGG	1597	CCACTGAA GGCTAGCTACAACGA AAATGGCA	9511
724	CCCCACU G UCUGGCUU	1598	AAGCCAGA GGCTAGCTACAACGA AGTGGGGG	9512
750	UGGAUGAU G UGGUUUUG	1599	CAAAACCA GGCTAGCTACAACGA ATCATCCA	9513
771	CCAAGUCU G UACAACAU	1600	ATGTTGTA GGCTAGCTACAACGA AGACTTGG	9514
801	AUGCCGCU G UUACCAAU	1601	ATTGGTAA GGCTAGCTACAACGA AGCGGCAT	9515
818	UUUCUUUU G UCUUUGGG	1602	CCCAAAGA GGCTAGCTACAACGA AAAAGAAA	9516
888	UGGGAUAU G UAAUUGGG	1603	CCCAATTA GGCTAGCTACAACGA ATATCCCA	9517
927	AACAUAUU G UACAAAAA	1604	TTTTTGTA GGCTAGCTACAACGA AATATGTT	9518
944	AUCAAAAU G UGUUUUAG	1605	CTAAAACA GGCTAGCTACAACGA ATTTTGAT	9519
946	CAAAAUGU G UUUUAGGA	1606	TCCTAAAA GGCTAGCTACAACGA ACATTTTG	9520
963	AACUUCCU G UAAACAGG	1607	CCTGTTTA GGCTAGCTACAACGA AGGAAGTT	9521
991	GAAAGUAU G UCAACGAA	1608	TTCGTTGA GGCTAGCTACAACGA ATACTTTC	9522
1002	AACGAAUU G UGGGUCUU	1609	AAGACCCA GGCTAGCTACAACGA AATTCGTT	9523
1039	CACGCAAU G UGGAUAUU	1610	AATATCCA GGCTAGCTACAACGA ATTGCGTG	9524
1137	AACAGUAU G UGAACCUU	1611	AAGGTTCA GGCTAGCTACAACGA ATACTGTT	9525
1184	UGCCAAGU G UUUGCUGA	1612	TCAGCAAA GGCTAGCTACAACGA ACTTGGCA	9526
1251	GAACCUUU G UGUCUCCU	1613	AGGAGACA GGCTAGCTACAACGA AAAGGTTC	9527
1253	ACCUUUGU G UCUCCUCU	1614	AGAGGAGA GGCTAGCTACAACGA ACAAAGGT	9528
1294	AGCCGCUU G UUUUGCUC	1615	GAGCAAAA GGCTAGCTACAACGA AAGCGGCT	9529
1344	ACAAUUCU G UCGUGCUC	1616	GAGCACGA GGCTAGCTACAACGA AGAATTGT	9530
1390	GCUAGGCU G UGCUGCCA	1617	TGGCAGCA GGCTAGCTACAACGA AGCCTAGC	9531
1425	CGUCCUUU G UUUACGUC	1618	GACGTAAA GGCTAGCTACAACGA AAAGGACG	9532
1508	CGCCUAUU G UACCGACC	1619	GGTCGGTA GGCTAGCTACAACGA AATAGGCG	9533
1557	CCCCGUCU G UGCCUUCU	1620	AGAAGGCA GGCTAGCTACAACGA AGACGGGG	9534
1581	CGGACCGU G UGCACUUC	1621	GAAGTGCA GGCTAGCTACAACGA ACGGTCCG	9535
1684	UCAGCAAU G UCAACGAC	1622	GTCGTTGA GGCTAGCTACAACGA ATTGCTGA	9536
1719	CAAAGACU G UGUGUUUA	1623	TAAACACA GGCTAGCTACAACGA AGTCTTTG	9537
1721	AAGACUGU G UGUUUAAU	1624	ATTAAACA GGCTAGCTACAACGA ACAGTCTT	9538
1723	GACUGUGU G UUUAAUGA	1625	TCATTAAA GGCTAGCTACAACGA ACACAGTC	9539
1772	AGGUCUUU G UACUAGGA	1626	TCCTAGTA GGCTAGCTACAACGA AAAGACCT	9540
1785	AGGAGGCU G UAGGCAUA	1627	TATGCCTA GGCTAGCTACAACGA AGCCTCCT	9541
1801	AAAUUGGU G UGUUCACC	1628	GGTGAACA GGCTAGCTACAACGA ACCAATTT	9542
1803	AUUGGUGU G UUCACCAG	1629	CTGGTGAA GGCTAGCTACAACGA ACACCAAT	9543
1850	CAUCUCAU G UUCAUGUC	1630	GACATGAA GGCTAGCTACAACGA ATGAGATG	9544
<u></u>				2244

1050	AUGUUCAU G UCCUACUG	2.000	CACTACCA CCCTACCTACAACCA ATCAACAT	
1856	GUCCUACU G UCCAAGCC	1631	CAGTAGGA GGCTAGCTACAACGA ATGAACAT GGCTTGAA GGCTAGCTACAACGA AGTAGGAC	9545
		1632		9546
1881	UCCAAGCU G UGCCUUGG	1633	CCAAGGCA GGCTAGCTACAACGA AGCTTGGA	9547
1939	GAGCUUCU G UGGAGUUA	1634	TAACTCCA GGCTAGCTACAACGA AGAAGCTC	9548
2013	UCUGCUCU G UAUCGGGG	1635	CCCCGATA GGCTAGCTACAACGA AGAGCAGA	9549
2045	GGAACAUU G UUCACCUC	1636	GAGGTGAA GGCTAGCTACAACGA AATGTTCC	9550
2082	GCUAUUCU G UGUUGGGG	1637	CCCCAACA GGCTAGCTACAACGA AGAATAGC	9551
2084	UAUUCUGU G UUGGGGUG	1638	CACCCCAA GGCTAGCTACAACGA ACAGAATA	9552
2167	UCAGCUAU G UCAACGUU	1639	AACGTTGA GGCTAGCTACAACGA ATAGCTGA	9553
2205	CAACUAUU G UGGUUUCA	1640	TGAAACCA GGCTAGCTACAACGA AATAGTTG	9554
2222	CAUUUCCU G UCUUACUU	1641	AAGTAAGA GGCTAGCTACAACGA AGGAAATG	9555
2245	GAGAAACU G UUCUUGAA	1642	TTCAAGAA GGCTAGCTACAACGA AGTTTCTC	9556
2262	UAUUUGGU G UCUUUUGG	1643	CCAAAAGA GGCTAGCTACAACGA ACCAAATA	9557
2274	UUUGGAGU G UGGAUUCG	1644	CGAATCCA GGCTAGCTACAACGA ACTCCAAA	9558
2344	AAACUACU G UUGUUAGA	1645	TCTAACAA GGCTAGCTACAACGA AGTAGTTT	9559
2347	CUACUGUU G UUAGACGA	1646	TCGTCTAA GGCTAGCTACAACGA AACAGTAG	9560
2450	AUCUCAAU G UUAGUAUU	1647	AATACTAA GGCTAGCTACAACGA ATTGAGAT	9561
2573	AGGACAUU G UUGAUAGA	1648	TCTATCAA GGCTAGCTACAACGA AATGTCCT	9562
2583	UGAUAGAU G UAAGCAAU	1649	ATTGCTTA GGCTAGCTACAACGA ATCTATCA	9563
2594	AGCAAUUU G UGGGGCCC	1650	GGGCCCCA GGCTAGCTACAACGA AAATTGCT	9564
2663	AUCCCAAU G UUACUAAA	1651	TTTAGTAA GGCTAGCTACAACGA ATTGGGAT	9565
2717	CAGAGUAU G UAGUUAAU	1652	ATTAACTA GGCTAGCTACAACGA ATACTCTG	9566
2901	AUCUUUCU G UCCCCAAU	1653	ATTGGGGA GGCTAGCTACAACGA AGAAAGAT	9567
3071	GGGGGACU G UUGGGGUG	1654	CACCCCAA GGCTAGCTACAACGA AGTCCCCC	9568
3111	UCACAACU G UGCCAGCA	1655	TGCTGGCA GGCTAGCTACAACGA AGTTGTGA	9569
40	AUCCCAGA G UCAGGGCC	1656	GGCCCTGA GGCTAGCTACAACGA TCTGGGAT	9570
46	GAGUCAGG G CCCUGUAC	1657	GTACAGGG GGCTAGCTACAACGA CCTGACTC	9571
65	UCCUGCUG G UGGCUCCA	1658	TGGAGCCA GGCTAGCTACAACGA CAGCAGGA	9572
68	UGCUGGUG G CUCCAGUU	1659	AACTGGAG GGCTAGCTACAACGA CACCAGCA	9573
74	UGGCUCCA G UUCAGGAA	1660	TTCCTGAA GGCTAGCTACAACGA TGGAGCCA	9574
85	CAGGAACA G UGAGCCCU	1661	AGGGCTCA GGCTAGCTACAACGA TGTTCCTG	9575
89	AACAGUGA G CCCUGCUC	1662	GAGCAGGG GGCTAGCTACAACGA TCACTGTT	9576
120	GCCAUAUC G UCAAUCUU	1663	AAGATTGA GGCTAGCTACAACGA GATATGGC	9577
196	CCCUGCUC G UGUUACAG	1664	CTGTAACA GGCTAGCTACAACGA GAGCAGGG	9578
205	UGUUACAG G CGGGGUUU	1665	AAACCCCG GGCTAGCTACAACGA CTGTAACA	9579
210	CAGGCGGG G UUUUUCUU	1666	AAGAAAAA GGCTAGCTACAACGA CCCGCCTG	9580
248	ACCACAGA G UCUAGACU	1667	AGTCTAGA GGCTAGCTACAACGA TCTGTGGT	9581
258	CUAGACUC G UGGUGGAC	1668	GTCCACCA GGCTAGCTACAACGA GAGTCTAG	9582
261	GACUCGUG G UGGACUUC	1669	GAAGTCCA GGCTAGCTACAACGA CACGAGTC	9583
295	GAACACCC G UGUGUCUU	1670	AAGACACA GGCTAGCTACAACGA GGGTGTTC	9584
305	GUGUCUUG G CCAAAAUU	1671	AATTTTGG GGCTAGCTACAACGA CAAGACAC	9585
318	AAUUCGCA G UCCCAAAU	1672	ATTTGGGA GGCTAGCTACAACGA TGCGAATT	
332	AAUCUCCA G UCACUCAC	1673	GTGAGTGA GGCTAGCTACAACGA TGGAGATT	9586
368	UUGUCCUG G UUAUCGCU		AGCGATAA GGCTAGCTACAACGA CAGGACAA	9587
390	UGUCUGCG G CGUUUUAU	1674	ATAAAACG GGCTAGCTACAACGA CGCAGACA	9588
392	UCUGCGGC G UUUUAUCA	1675	TGATAAAA GGCTAGCTACAACGA GCCGCAGA	9589
442	UCUUGUUG G UUCUUCUG	1676	CAGAAGAA GGCTAGCTACAACGA GCCGCAGA	9590
461	CUAUCAAG G UAUGUUGC	1677	GCAACATA GGCTAGCTACAACGA CAACAAGA GCAACATA GGCTAGCTACAACGA CTTGATAG	9591
472	UGUUGCCC G UUUGUCCU	1678		9592
506		1679	AGGACAAA GGCTAGCTACAACGA GGGCAACA	9593
625	AACAACCA G CACCGGAC	1680	GTCCGGTG GGCTAGCTACAACGA TGGTTGTT	9594
045	CAUCUUGG G CUUUCGCA	1681	TGCGAAAG GGCTAGCTACAACGA CCAAGATG	9595

648	CUAUGGGA G UGGGCCUC	1682	GAGGCCCA GGCTAGCTACAACGA TCCCATAG	9506
652	GGGAGUGG G CCUCAGUC	1683	GACTGAGG GGCTAGCTACAACGA CCACTCCC	9596 9597
658	GGGCCUCA G UCCGUUUC	1684	GAAACGGA GGCTAGCTACAACGA TGAGGCCC	9598
662	CUCAGUCC G UUUCUCUU	1685	AAGAGAAA GGCTAGCTACAACGA GGACTGAG	9598
672	UUCUCUUG G CUCAGUUU	1686	AAACTGAG GGCTAGCTACAACGA CAAGAGAA	9600
677	UUGGCUCA G UUUACUAG	1687	CTAGTAAA GGCTAGCTACAACGA TGAGCCAA	9601
685	GUUUACUA G UGCCAUUU	1688	AAATGGCA GGCTAGCTACAACGA TAGTAAAC	9602
699	UUUGUUCA G UGGUUCGU	1689	ACGAACCA GGCTAGCTACAACGA TGAACAAA	9603
702	GUUCAGUG G UUCGUAGG	1690	CCTACGAA GGCTAGCTACAACGA CACTGAAC	9604
706	AGUGGUUC G UAGGGCUU	1691	AAGCCCTA GGCTAGCTACAACGA GAACCACT	9605
711	UUCGUAGG G CUUUCCCC	1692	GGGGAAAG GGCTAGCTACAACGA CCTACGAA	9606
729	ACUGUCUG G CUUUCAGU	1693	ACTGAAAG GGCTAGCTACAACGA CAGACAGT	9606
736	GGCUUUCA G UUAUAUGG	1694	CCATATAA GGCTAGCTACAACGA TGAAAGCC	9608
753	AUGAUGUG G UUUUGGGG	1695	CCCCAAAA GGCTAGCTACAACGA CACATCAT	9609
762	UUUUGGGG G CCAAGUCU	1696	AGACTTGG GGCTAGCTACAACGA CCCCAAAA	9610
767	GGGGCCAA G UCUGUACA	1697	TGTACAGA GGCTAGCTACAACGA TTGGCCCC	9611
785	CAUCUUGA G UCCCUUUA	1698	TAAAGGA GGCTAGCTACAACGA TCAAGATG	9612
826	GUCUUUGG G UAUACAUU	1699	AATGTATA GGCTAGCTACAACGA CCAAAGAC	9612
898	AAUUGGGA G UUGGGGCA	1700	TGCCCCAA GGCTAGCTACAACGA TCCCAATT	9613
904	GAGUUGGG G CACAUUGC	1701	GCAATGTG GGCTAGCTACAACGA CCCAACTC	9614
971	GUAAACAG G CCUAUUGA	1702	TCAATAGG GGCTAGCTACAACGA CTGTTTAC	9616
987	AUUGGAAA G UAUGUCAA	1702	TTGACATA GGCTAGCTACAACGA TTTCCAAT	9617
1006	AAUUGUGG G UCUUUUGG	1703	CCAAAAGA GGCTAGCTACAACGA CCACAATT	9618
1016	CUUUUGGG G UUUGCCGC	1704	GCGGCAAA GGCTAGCTACAACGA CCCAAAAG	9618 9619
1080	GCAUACAA G CAAAACAG	1705	CTGTTTTG GGCTAGCTACAACGA TTGTATGC	9619
1089	CAAAACAG G CUUUUACU	1707	AGTAAAAG GGCTAGCTACAACGA CTGTTTTG	9621
1116	CUUACAAG G CCUUUCUA	1707	TAGAAAGG GGCTAGCTACAACGA CTTGTAAG	9621
1126	CUUUCUAA G UAAACAGU	1709	ACTGTTTA GGCTAGCTACAACGA TTAGAAAG	9623
1133	AGUAAACA G UAUGUGAA	1710	TTCACATA GGCTAGCTACAACGA TGTTTACT	9624
1152	UUUACCCC G UUGCUCGG	1711	CCGAGCAA GGCTAGCTACAACGA GGGGTAAA	9625
1160	GUUGCUCG G CAACGGCC	1712	GGCCGTTG GGCTAGCTACAACGA CGAGCAAC	9626
1166	CGGCAACG G CCUGGUCU	1713	AGACCAGG GGCTAGCTACAACGA CGTTGCCG	9627
1171	ACGGCCUG G UCUAUGCC	1714	GGCATAGA GGCTAGCTACAACGA CAGGCCGT	9628
1182	UAUGCCAA G UGUUUGCU	1715	AGCAAACA GGCTAGCTACAACGA TTGGCATA	9629
1207	CCCCACUG G UUGGGGCU	1716	AGCCCCAA GGCTAGCTACAACGA CAGTGGGG	9630
1213	UGGUUGGG G CUUGGCCA	1717	TGGCCAAG GGCTAGCTACAACGA CCCAACCA	9631
1218	GGGGCUUG G CCAUAGGC	1718	GCCTATGG GGCTAGCTACAACGA CAAGCCCC	9632
1225	GGCCAUAG G CCAUCAGC	1719	GCTGATGG GGCTAGCTACAACGA CTATGGCC	9632
1232	GGCCAUCA G CGCAUGCG	1720	CGCATGCG GGCTAGCTACAACGA TGATGGCC	9634
1240	GCGCAUGC G UGGAACCU	1721	AGGTTCCA GGCTAGCTACAACGA GCATGCGC	9635
1287	AACUCCUA G CCGCUUGU	1722	ACAAGCGG GGCTAGCTACAACGA TAGGAGTT	9636
1306	UGCUCGCA G CAGGUCUG	1723	CAGACCTG GGCTAGCTACAACGA TGCGAGCA	9637
1310	CGCAGCAG G UCUGGGGC	1724	GCCCCAGA GGCTAGCTACAACGA CTGCTGCG	9638
1317	GGUCUGGG G CAAAACUC	1725	GAGTTTTG GGCTAGCTACAACGA CCCAGACC	9639
1347	AUUCUGUC G UGCUCUCC	1726	GGAGAGCA GGCTAGCTACAACGA GACAGAAT	9640
1379	UUUCCAUG G CUGCUAGG	1727	CCTAGCAG GGCTAGCTACAACGA CATGGAAA	9641
1387	GCUGCUAG G CUGUGCUG	1728	CAGCACAG GGCTAGCTACAACGA CTAGCAGC	9642
1418	CGCGGGAC G UCCUUUGU	1729	ACAAAGGA GGCTAGCTACAACGA GTCCCGCG	9643
1431	UUGUUUAC G UCCCGUCG	1730	CGACGGGA GGCTAGCTACAACGA GTAAACAA	9644
1436	UACGUCCC G UCGGCGCU	1731	AGCGCCGA GGCTAGCTACAACGA GGGACGTA	9645
1440	UCCCGUCG G CGCUGAAU	1732	ATTCAGCG GGCTAGCTACAACGA CGACGGGA	9646
				

[47]	TIGGGGGG G GGGGTTIGG		CONTROL COMPAGNATA CON COCCON	
1471	CUCCCGGG G CCGCUUGG	1733	CCAAGCGG GGCTAGCTACAACGA CCCGGGAG	9647
1481	CGCUUGGG G CUCUACCG	1734	CGGTAGAG GGCTAGCTACAACGA CCCAAGCG	9648
1517	UACCGACC G UCCACGGG	1735	CCCGTGGA GGCTAGCTACAACGA GGTCGGTA	9649
1526	UCCACGGG G CGCACCUC	1736	GAGGTGCG GGCTAGCTACAACGA CCCGTGGA	9650
1553	GACUCCCC G UCUGUGCC	1737	GGCACAGA GGCTAGCTACAACGA GGGGAGTC	9651
1579	GCCGGACC G UGUGCACU	1738	AGTGCACA GGCTAGCTACAACGA GGTCCGGC	9652
1605	CUCUGCAC G UCGCAUGG	1739	CCATGCGA GGCTAGCTACAACGA GTGCAGAG	9653
1622	AGACCACC G UGAACGCC	1740	GGCGTTCA GGCTAGCTACAACGA GGTGGTCT	9654
1649	UGCCCAAG G UCUUGCAU	1741	ATGCAAGA GGCTAGCTACAACGA CTTGGGCA	9655
1679	GACUUUCA G CAAUGUCA	1742	TGACATTG GGCTAGCTACAACGA TGAAAGTC	9656
1703	ACCUUGAG G CAUACUUC	1743	GAAGTATG GGCTAGCTACAACGA CTCAAGGT	9657
1732	UUUAAUGA G UGGGAGGA	1744	TCCTCCCA GGCTAGCTACAACGA TCATTAAA	9658
1741	UGGGAGGA G UUGGGGGA	1745	TCCCCCAA GGCTAGCTACAACGA TCCTCCCA	9659
1754	GGGAGGAG G UUAGGUUA	1746	TAACCTAA GGCTAGCTACAACGA CTCCTCCC	9660
1759	GAGGUUAG G UUAAAGGU	1747	ACCTTTAA GGCTAGCTACAACGA CTAACCTC	9661
1766	GGUUAAAG G UCUUUGUA	1748	TACAAAGA GGCTAGCTACAACGA CTTTAACC	9662
1782	ACUAGGAG G CUGUAGGC	1749	GCCTACAG GGCTAGCTACAACGA CTCCTAGT	9663
1789	GGCUGUAG G CAUAAAUU	1750	AATTTATG GGCTAGCTACAACGA CTACAGCC	9664
1799	AUAAAUUG G UGUGUUCA	1751	TGAACACA GGCTAGCTACAACGA CAATTTAT	9665
1811	GUUCACCA G CACCAUGC	1752	GCATGGTG GGCTAGCTACAACGA TGGTGAAC	9666
1870	CUGUUCAA G CCUCCAAG	1753	CTTGGAGG GGCTAGCTACAACGA TTGAACAG	9667
1878	GCCUCCAA G CUGUGCCU	1754	AGGCACAG GGCTAGCTACAACGA TTGGAGGC	9668
1890	UGCCUUGG G UGGCUUUG	1755	CAAAGCCA GGCTAGCTACAACGA CCAAGGCA	9669
1893	CUUGGGUG G CUUUGGGG	1756	CCCCAAAG GGCTAGCTACAACGA CACCCAAG	9670
1901	GCUUUGGG G CAUGGACA	1757	TGTCCATG GGCTAGCTACAACGA CCCAAAGC	9671
1917	AUUGACCC G UAUAAAGA	1758	TCTTTATA GGCTAGCTACAACGA GGGTCAAT	9672
1933	AAUUUGGA G CUUCUGUG	1759	CACAGAAG GGCTAGCTACAACGA TCCAAATT	9673
1944	UCUGUGGA G UUACUCUC	1760	GAGAGTAA GGCTAGCTACAACGA TCCACAGA	9674
2023	AUCGGGGG G CCUUAGAG	1761	CTCTAAGG GGCTAGCTACAACGA CCCCCGAT	9675
2031	GCCUUAGA G UCUCCGGA	1762	TCCGGAGA GGCTAGCTACAACGA TCTAAGGC	9676
2062	ACCAUACG G CACUCAGG	1763	CCTGAGTG GGCTAGCTACAACGA CGTATGGT	9677
2070	GCACUCAG G CAAGCUAU	1764	ATAGCTTG GGCTAGCTACAACGA CTGAGTGC	9678
2074	UCAGGCAA G CUAUUCUG	1765	CAGAATAG GGCTAGCTACAACGA TTGCCTGA	9679
2090	GUGUUGGG G UGAGUUGA	1766	TCAACTCA GGCTAGCTACAACGA CCCAACAC	9680
2094	UGGGGUGA G UUGAUGAA	1767	TTCATCAA GGCTAGCTACAACGA TCACCCCA	9681
2107	UGAAUCUA G CCACCUGG	1768	CCAGGTGG GGCTAGCTACAACGA TAGATTCA	9682
2116	CCACCUGG G UGGGAAGU	1769	ACTTCCCA GGCTAGCTACAACGA CCAGGTGG	9683
2123	GGUGGGAA G UAAUUUGG	1770	CCAAATTA GGCTAGCTACAACGA TTCCCACC	9684
2140	AAGAUCCA G CAUCCAGG	1771	CCTGGATG GGCTAGCTACAACGA TGGATCTT	9685
2155	GGGAAUUA G UAGUCAGC	1772	GCTGACTA GGCTAGCTACAACGA TAATTCCC	9686
2158	AAUUAGUA G UCAGCUAU	1773	ATAGCTGA GGCTAGCTACAACGA TACTAATT	9687
2162	AGUAGUCA G CUAUGUCA	1774	TGACATAG GGCTAGCTACAACGA TGACTACT	9688
2173	AUGUCAAC G UUAAUAUG	1775	CATATTAA GGCTAGCTACAACGA GTTGACAT	9689
2183	UAAUAUGG G CCUAAAAA	1776	TTTTTAGG GGCTAGCTACAACGA CCATATTA	9690
2208	CUAUUGUG G UUUCACAU	1777	ATGTGAAA GGCTAGCTACAACGA CACAATAG	9691
2235	ACUUUUGG G CGAGAAAC	1778	GTTTCTCG GGCTAGCTACAACGA CCAAAAGT	9692
2260	AAUAUUUG G UGUCUUUU	1779	AAAAGACA GGCTAGCTACAACGA CAAATATT	9693
2272	CUUUUGGA G UGUGGAUU	1780	AATCCACA GGCTAGCTACAACGA TCCAAAAG	9694
2360	ACGAAGAG G CAGGUCCC	1781	GGGACCTG GGCTAGCTACAACGA CTCTTCGT	9695
2364	AGAGGCAG G UCCCCUAG	1782	CTAGGGGA GGCTAGCTACAACGA CTGCCTCT	9696
2403	AGACGAAG G UCUCAAUC	1783	GATTGAGA GGCTAGCTACAACGA CTTCGTCT	9697
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2417	AUCGCCGC G UCGCAGAA	1784	TTCTGCGA GGCTAGCTACAACGA GCGGCGAT	9698
2454	CAAUGUUA G UAUUCCUU	1785	AAGGAATA GGCTAGCTACAACGA TAACATTG	9699
2474	CACAUAAG G UGGGAAAC	1786	GTTTCCCA GGCTAGCTACAACGA CTTATGTG	9700
2491	UUUACGGG G CUUUAUUC	1787	GAATAAAG GGCTAGCTACAACGA CCCGTAAA	9701
2507	CUUCUACG G UACCUUGC	1788	GCAAGGTA GGCTAGCTACAACGA CGTAGAAG	9702
2530	CCUAAAUG G CAAACUCC	1789	GGAGTTTG GGCTAGCTACAACGA CATTTAGG	9703
2587	AGAUGUAA G CAAUUUGU	1790	ACAAATTG GGCTAGCTACAACGA TTACATCT	9704
2599	UUUGUGGG G CCCCUUAC	1791	GTAAGGGG GGCTAGCTACAACGA CCCACAAA	9705
2609	CCCUUACA G UAAAUGAA	1792	TTCATTTA GGCTAGCTACAACGA TGTAAGGG	9706
2650	CCUGCUAG G UUUUAUCC	1793	GGATAAAA GGCTAGCTACAACGA CTAGCAGG	9707
2701	AUCAAACC G UAUUAUCC	1794	GGATAATA GGCTAGCTACAACGA GGTTTGAT	9708
2713	UAUCCAGA G UAUGUAGU	1795	ACTACATA GGCTAGCTACAACGA TCTGGATA	9709
2720	AGUAUGUA G UUAAUCAU	1796	ATGATTAA GGCTAGCTACAACGA TACATACT	9710
2768	UUUGGAAG G CGGGGAUC	1797	GATCCCCG GGCTAGCTACAACGA CTTCCAAA	9711
2791	AAAAGAGA G UCCACACG	1798	CGTGTGGA GGCTAGCTACAACGA TCTCTTTT	9712
2799	GUCCACAC G UAGCGCCU	1799	AGGCGCTA GGCTAGCTACAACGA GTGTGGAC	9713
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2818	UUUUGCGG G UCACCAUA	1801	TATGGTGA GGCTAGCTACAACGA CCGCAAAA	9715
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2857	CAUGGGAG G UUGGUCUU	1803	AAGACCAA GGCTAGCTACAACGA CTCCCATG	9717
2861	GGAGGUUG G UCUUCCAA	1804	TTGGAAGA GGCTAGCTACAACGA CAACCTCC	9718
2881	UCGAAAAG G CAUGGGGA	1805	TCCCCATG GGCTAGCTACAACGA CTTTTCGA	9719
2936	GAUCAUCA G UUGGACCC	1806	GGGTCCAA GGCTAGCTACAACGA TGATGATC	9720
2955	CAUUCAAA G CCAACUCA	1807	TGAGTTGG GGCTAGCTACAACGA TTTGAATG	
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3005	GACAACUG G CCGGACGC	1809	GCGTCCGG GGCTAGCTACAACGA CAGTTGTC	9723
3021	CCAACAAG G UGGGAGUG	1810	CACTCCCA GGCTAGCTACAACGA CTTGTTGG	9724
3027	AGGUGGGA G UGGGAGCA	1811	TGCTCCCA GGCTAGCTACAACGA TCCCACCT	9725
3033	GAGUGGGA G CAUUCGGG	1812	CCCGAATG GGCTAGCTACAACGA TCCCACTC	9726
3041	GCAUUCGG G CCAGGGUU	1813	AACCCTGG GGCTAGCTACAACGA CCGAATGC	9727
3047	GGGCCAGG G UUCACCCC	1814	GGGGTGAA GGCTAGCTACAACGA CCTGGCCC	9728
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3097	CGCUCAGG G CCUACUCA	1817	TGAGTAGG GGCTAGCTACAACGA CCTGAGCG	9730
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3146	ACCAAUCG G CAGUCAGG	1820	CCTGACTG GGCTAGCTACAACGA CGATTGGT	9733
3149	AAUCGGCA G UCAGGAAG	1821	CTTCCTGA GGCTAGCTACAACGA TGCCGATT	9734
3158	UCAGGAAG G CAGCCUAC	1822	GTAGGCTG GGCTAGCTACAACGA CTTCCTGA	9735 9736
3161	GGAAGGCA G CCUACUCC	1823	GGAGTAGG GGCTAGCTACAACGA TGCCTTCC	
3204	AUCCUCAG G CCAUGCAG	1824	CTGCATGG GGCTAGCTACAACGA CTGAGGAT	9737
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32	UCUUCAAG A UCCCAGAG	1826	CTCTGGGA GGCTAGCTACAACGA CTTGAAGA	9741
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115	UCUCUGCC A UAUCGUCA	50	TGACGATA GGCTAGCTACAACGA GGCAGAGA	9746
117	UCUGCCAU A UCGUCAAU	737	ATTGACGA GGCTAGCTACAACGA GGCAGAGA ATTGACGA GGCTAGCTACAACGA ATGGCAGA	9747
	TTTTTTTTTTTTTTTTTTTTTTTTTTTTTTTTTTTTTT	53	ATTOROGA COCINCUACHAMOM ATGGCAGA	9748

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136	UAUCGAAG A CUGGGGAC	1830	GTCCCCAG GGCTAGCTACAACGA CTTCGATA	9751
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155	UGUACCGA A CAUGGAGA	1832	TCTCCATG GGCTAGCTACAACGA TCGGTACA	9754
157	UACCGAAC A UGGAGAAC	745	GTTCTCCA GGCTAGCTACAACGA GTTCGGTA	9755
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238	UCCUCACA A UACCACAG	1838	CTGTGGTA GGCTAGCTACAACGA TGTGAGGA	9765
240	CUCACAAU A CCACAGAG	77	CTCTGTGG GGCTAGCTACAACGA ATTGTGAG	9766
243	ACAAUACC A CAGAGUCU	765	AGACTCTG GGCTAGCTACAACGA GGTATTGT	9767
254	GAGUCUAG A CUCGUGGU	1839	ACCACGAG GGCTAGCTACAACGA CTAGACTC	9768
265	CGUGGUGG A CUUCUCUC	1840	GAGAGAAG GGCTAGCTACAACGA CCACCACG	9769
275	UUCUCUCA A UUUUCUAG	1841	CTAGAAAA GGCTAGCTACAACGA TGAGAGAA	9770
289	UAGGGGGA A CACCCGUG	1842	CACGGGTG GGCTAGCTACAACGA TCCCCCTA	9771
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339	AGUCACUC A CCAACCUG	789	CAGGTTGG GGCTAGCTACAACGA GAGTGACT	9776
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400	GUUUUAUC A UCUUCCUC	802	GAGGAAGA GGCTAGCTACAACGA GATAAAAC	9782
412	UCCUCUGC A UCCUGCUG	807	CAGCAGGA GGCTAGCTACAACGA GCAGAGGA	9783
423	CUGCUGCU A UGCCUCAU	119	ATGAGGCA GGCTAGCTACAACGA AGCAGCAG	9784
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455	UCUGGACU A UCAAGGUA	130	TACCTTGA GGCTAGCTACAACGA AGTCCAGA	9787
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516	ACCGGACC A UGCAAAAC	836	GTTTTGCA GGCTAGCTACAACGA GGTCCGGT	9795
523	CAUGCAAA A CCUGCACA	1854	TGTGCAGG GGCTAGCTACAACGA TTTGCATG	9796
529	AAACCUGC A CAACUCCU	840	AGGAGTTG GGCTAGCTACAACGA GCAGGTTT	9797
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574	GUUGCUGU A CAAAACCU	853	AGGTTTTG GGCTAGCTACAACGA ACAGCAAC	9801
579	UGUACAAA A CCUACGGA	152	TCCGTAGG GGCTAGCTACAACGA TTTGTACA	9802
583	CAAAACCU A CGGACGGA	1857	TCCGTCCG GGCTAGCTACAACGA AGGTTTTG	9803
587	ACCUACGG A CGGAAACU	153	AGTTTCCG GGCTAGCTACAACGA CCGTAGGT	9804
593	GGACGGAA A CUGCACCU	1858	AGGTGCAG GGCTAGCTACAACGA CCGTAGGT	9805
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604	GCACCUGU A UUCCCAUC	859	GATGGGAA GGCTAGCTACAACGA ACAGGTGC	9807
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615	CCCAUCCC A UCAUCUUG	864	CAAGATGA GGCTAGCTACAACGA GGGATGGG	9809
618	AUCCCAUC A UCUUGGGC	867	GCCCAAGA GGCTAGCTACAACGA GATGGGAT	9810
636	UUCGCAAA A UACCUAUG	868	CATAGGTA GGCTAGCTACAACGA GATGGGAT	9811
638	CGCAAAAU A CCUAUGGG	1860	CCCATAGG GGCTAGCTACAACGA ATTTTGCGAA	9812
642	AAAUACCU A UGGGAGUG	164	CACTCCCA GGCTAGCTACAACGA ATTTTGCG	9813
681	CUCAGUUU A CUAGUGCC	165		9814
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690 721	CUAGUGCC A UUUGUUCA UUUCCCCC A CUGUCUGG	884	TGAACAA GGCTAGCTACAACGA GGCACTAG CCAGACAG GGCTAGCTACAACGA GGGGGAAA	9816
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		193	CATCCATA GGCTAGCTACAACGA AACTGAAA	9818
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908	UGGGGCAC A UUGCCACA	924	TGTGGCAA GGCTAGCTACAACGA GTGCCCCA	9843
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	- Tariotta II occorede	1899	Connoil Gollischanda Chailea	9901

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1416	UACGCGGG A CGUCCUUU	1900	AAAGGACG GGCTAGCTACAACGA CCCGCGTA	9902
1429	CUUUGUUU A CGUCCCGU	338	ACGGGACG GGCTAGCTACAACGA AAACAAAG	9904
1447	GGCGCUGA A UCCCGCGG	1901	CCGCGGGA GGCTAGCTACAACGA TCAGCGCC	9905
1456	UCCCGCGG A CGACCCCU	1902	AGGGGTCG GGCTAGCTACAACGA CCGCGGGA	9906
1459	CGCGGACG A CCCCUCCC	1903	GGGAGGG GGCTAGCTACAACGA CGTCCGCG	9907
1486	GGGGCUCU A CCGCCCGC	345	GCGGGCGG GGCTAGCTACAACGA AGAGCCCC	9908
1505	CUCCGCCU A UUGUACCG	349	CGGTACAA GGCTAGCTACAACGA AGGCGGAG	9909
1510	CCUAUUGU A CCGACCGU	351	ACGGTCGG GGCTAGCTACAACGA ACAATAGG	9910
1514	UUGUACCG A CCGUCCAC	1904	GTGGACGG GGCTAGCTACAACGA CGGTACAA	9911
1521	GACCGUCC A CGGGGCGC	1064	GCGCCCG GGCTAGCTACAACGA GGACGGTC	9912
1530	CGGGGCGC A CCUCUCUU	1065	AAGAGAGG GGCTAGCTACAACGA GCGCCCCG	9913
1540	CUCUCUUU A CGCGGACU	357	AGTCCGCG GGCTAGCTACAACGA AAAGAGAG	9914
1546	UUACGCGG A CUCCCCGU	1905	ACGGGGAG GGCTAGCTACAACGA CCGCGTAA	9915
1567	GCCUUCUC A UCUGCCGG	1078	CCGGCAGA GGCTAGCTACAACGA GAGAAGGC	9916
1576	UCUGCCGG A CCGUGUGC	1906	GCACACGG GGCTAGCTACAACGA CCGGCAGA	9917
1585	CCGUGUGC A CUUCGCUU	1082	AAGCGAAG GGCTAGCTACAACGA GCACACGG	9918
1595	UUCGCUUC A CCUCUGCA	1085	TGCAGAGG GGCTAGCTACAACGA GAAGCGAA	9919
1603	ACCUCUGC A CGUCGCAU	1089	ATGCGACG GGCTAGCTACAACGA GCAGAGGT	9920
1610	CACGUCGC A UGGAGACC	1090	GGTCTCCA GGCTAGCTACAACGA GCGACGTG	9921
1616	GCAUGGAG A CCACCGUG	1907	CACGGTGG GGCTAGCTACAACGA CTCCATGC	9922
1619	UGGAGACC A CCGUGAAC	1092	GTTCACGG GGCTAGCTACAACGA GGTCTCCA	9923
1626	CACCGUGA A CGCCCACA	1908	TGTGGGCG GGCTAGCTACAACGA TCACGGTG	9924
1638	CCACAGGA A CCUGCCCA	1909	TGGGCAGG GGCTAGCTACAACGA TCCTGTGG	9925
1656	GGUCUUGC A UAAGAGGA	1104	TCCTCTTA GGCTAGCTACAACGA GCAAGACC	9926
1664	AUAAGAGG A CUCUUGGA	1910	TCCAAGAG GGCTAGCTACAACGA CCTCTTAT	9927
1672	ACUCUUGG A CUUUCAGC	1911	GCTGAAAG GGCTAGCTACAACGA CCAAGAGT	9928
1682	UUUCAGCA A UGUCAACG	1912	CGTTGACA GGCTAGCTACAACGA TGCTGAAA	9929
1688	CAAUGUCA A CGACCGAC	1913	GTCGGTCG GGCTAGCTACAACGA TGACATTG	9930
1691	UGUCAACG A CCGACCUU	1914	AAGGTCGG GGCTAGCTACAACGA CGTTGACA	9931
1695	AACGACCG A CCUUGAGG	1915	CCTCAAGG GGCTAGCTACAACGA CGGTCGTT	9932
1705	CUUGAGGC A UACUUCAA	1114	TTGAAGTA GGCTAGCTACAACGA GCCTCAAG	9933
1707	UGAGGCAU A CUUCAAAG	380	CTTTGAAG GGCTAGCTACAACGA ATGCCTCA	9934
1716	CUUCAAAG A CUGUGUGU	1916	ACACACAG GGCTAGCTACAACGA CTTTGAAG	9935
1728	UGUGUUUA A UGAGUGGG	1917	CCCACTCA GGCTAGCTACAACGA TAAACACA	9936
1774	GUCUUUGU A CUAGGAGG	394	CCTCCTAG GGCTAGCTACAACGA ACAAAGAC	9937
1791	CUGUAGGC A UAAAUUGG	1121	CCAATTTA GGCTAGCTACAACGA GCCTACAG	9938
1795	AGGCAUAA A UUGGUGUG	1918	CACACCAA GGCTAGCTACAACGA TTATGCCT	9939
1807	GUGUGUUC A CCAGCACC	1122	GGTGCTGG GGCTAGCTACAACGA GAACACAC	9940
1813	UCACCAGC A CCAUGCAA	1125	TTGCATGG GGCTAGCTACAACGA GCTGGTGA	9941
1816	CCAGCACC A UGCAACUU	1127	AAGTTGCA GGCTAGCTACAACGA GGTGCTGG	9942
1821	ACCAUGCA A CUUUUUCA	1919	TGAAAAAG GGCTAGCTACAACGA TGCATGGT	9943
1829	ACUUUUUC A CCUCUGCC	1130	GGCAGAGG GGCTAGCTACAACGA GAAAAAGT	9944
1840	UCUGCCUA A UCAUCUCA	1920	TGAGATGA GGCTAGCTACAACGA TAGGCAGA	9945
1843	GCCUAAUC A UCUCAUGU	1136	ACATGAGA GGCTAGCTACAACGA GATTAGGC	9946
1848	AUCAUCUC A UGUUCAUG	1138	CATGAACA GGCTAGCTACAACGA GAGATGAT	9947
1854	UCAUGUUC A UGUCCUAC	1139	GTAGGACA GGCTAGCTACAACGA GAACATGA	9948
1861	CAUGUCCU A CUGUUCAA	414	TTGAACAG GGCTAGCTACAACGA AGGACATG	9949
1903	UUUGGGGC A UGGACAUU	1152	AATGTCCA GGCTAGCTAGAACGA GCCCCAAA	9950
1907	GGGCAUGG A CAUUGACC	1921	GGTCAATG GGCTAGCTACAACGA CCATGCCC	9951
1909	GCAUGGAC A UUGACCCG	1153	CGGGTCAA GGCTAGCTACAACGA GTCCATGC	9952

1913	GGACAUUG A CCCGUAUA		TATACGGG GGCTAGCTACAACGA CAATGTCC	0050
1913	UGACCCGU A UAAAGAAU	1922	ATTCTTTA GGCTAGCTACAACGA ACGGGTCA	9953
1926	UAUAAAGA A UUUGGAGC	422	GCTCCAAA GGCTAGCTACAACGA TCTTTATA	9954
	GUGGAGUU A CUCUCUUU	1923	AAAGAGAG GGCTAGCTACAACGA AACTCCAC	9955
1947		429	GAAAGAAG GGCTAGCTACAACGA CAGAAGGC	9956
1967	GCCUUCUG A CUUCUUUC UUCCUUCU A UUCGAGAU	1924	ATCTCGAA GGCTAGCTACAACGA AGAAGGAA	9957
1981		446		9958
1988	UAUUCGAG A UCUCCUCG	1925	CGAGGAGA GGCTAGCTACAACGA CTCGAATA	9959
1997	UCUCCUCG A CACCGCCU	1926	AGGCGGTG GGCTAGCTACAACGA CGAGGAGA	9960
1999	UCCUCGAC A CCGCCUCU	1172	AGAGGCGG GGCTAGCTACAACGA GTCGAGGA	9961
2015	UGCUCUGU A UCGGGGGG	454	CCCCCGA GGCTAGCTACAACGA ACAGAGCA	9962
2040	UCUCCGGA A CAUUGUUC	1927	GAACAATG GGCTAGCTACAACGA TCCGGAGA	9963
2042	UCCGGAAC A UUGUUCAC	1183	GTGAACAA GGCTAGCTACAACGA GTTCCGGA	9964
2049	CAUUGUUC A CCUCACCA	1184	TGGTGAGG GGCTAGCTACAACGA GAACAATG	9965
2054	UUCACCUC A CCAUACGG	1187	CCGTATGG GGCTAGCTACAACGA GAGGTGAA	9966
2057	ACCUCACC A UACGGCAC	1189	GTGCCGTA GGCTAGCTACAACGA GGTGAGGT	9967
2059	CUCACCAU A CGGCACUC	464	GAGTGCCG GGCTAGCTACAACGA ATGGTGAG	9968
2064	CAUACGGC A CUCAGGCA	1190	TGCCTGAG GGCTAGCTACAACGA GCCGTATG	9969
2077	GGCAAGCU A UUCUGUGU	466	ACACAGAA GGCTAGCTACAACGA AGCTTGCC	9970
2098	GUGAGUUG A UGAAUCUA	1928	TAGATTCA GGCTAGCTACAACGA CAACTCAC	9971
2102	GUUGAUGA A UCUAGCCA	1929	TGGCTAGA GGCTAGCTACAACGA TCATCAAC	9972
2110	AUCUAGCC A CCUGGGUG	1198	CACCCAGG GGCTAGCTACAACGA GGCTAGAT	9973
2126	GGGAAGUA A UUUGGAAG	1930	CTTCCAAA GGCTAGCTACAACGA TACTTCCC	9974
2135	UUUGGAAG A UCCAGCAU	1931	ATGCTGGA GGCTAGCTACAACGA CTTCCAAA	9975
2142	GAUCCAGC A UCCAGGGA	1203	TCCCTGGA GGCTAGCTACAACGA GCTGGATC	9976
2151	UCCAGGGA A UUAGUAGU	1932	ACTACTAA GGCTAGCTACAACGA TCCCTGGA	9977
2165	AGUCAGCU A UGUCAACG	482	CGTTGACA GGCTAGCTACAACGA AGCTGACT	9978
2171	CUAUGUCA A CGUUAAUA	1933	TATTAACG GGCTAGCTACAACGA TGACATAG	9979
2177	CAACGUUA A UAUGGGCC	1934	GGCCCATA GGCTAGCTACAACGA TAACGTTG	9980
2179	ACGUUAAU A UGGGCCUA	486	TAGGCCCA GGCTAGCTACAACGA ATTAACGT	9981
2191	GCCUAAAA A UCAGACAA	1935	TTGTCTGA GGCTAGCTACAACGA TTTTAGGC	9982
2196	AAAAUCAG A CAACUAUU	1936	AATAGTTG GGCTAGCTACAACGA CTGATTTT	9983
2199	AUCAGACA A CUAUUGUG	1937	CACAATAG GGCTAGCTACAACGA TGTCTGAT	9984
2202	AGACAACU A UUGUGGUU	489	AACCACAA GGCTAGCTACAACGA AGTTGTCT	9985
2213	GUGGUUUC A CAUUUCCU	1214	AGGAAATG GGCTAGCTACAACGA GAAACCAC	9986
2215	GGUUUCAC A UUUCCUGU	1215	ACAGGAAA GGCTAGCTACAACGA GTGAAACC	9987
2227	CCUGUCUU A CUUUUGGG	499	CCCAAAAG GGCTAGCTACAACGA AAGACAGG	9988
2242	GGCGAGAA A CUGUUCUU	1938	AAGAACAG GGCTAGCTACAACGA TTCTCGCC	9989
2253	GUUCUUGA A UAUUUGGU	1939	ACCAAATA GGCTAGCTACAACGA TCAAGAAC	9990
2255	UCUUGAAU A UUUGGUGU	506	ACACCAAA GGCTAGCTACAACGA ATTCAAGA	9991
2278	GAGUGUGG A UUCGCACU	1940	AGTGCGAA GGCTAGCTACAACGA CCACACTC	9992
2284	GGAUUCGC A CUCCUCCU	1223	AGGAGGAG GGCTAGCTACAACGA GCGAATCC	9993
2295	CCUCCUGC A UAUAGACC	1229	GGTCTATA GGCTAGCTACAACGA GCAGGAGG	9994
2297	UCCUGCAU A UAGACCAC	517	GTGGTCTA GGCTAGCTACAACGA ATGCAGGA	9995
2301	GCAUAUAG A CCACCAAA	1941	TTTGGTGG GGCTAGCTACAACGA CTATATGC	9996
2304	UAUAGACC A CCAAAUGC	1231	GCATTTGG GGCTAGCTACAACGA GGTCTATA	9997
2309	ACCACCAA A UGCCCCUA	1942	TAGGGGCA GGCTAGCTACAACGA TTGGTGGT	
2317	AUGCCCCU A UCUUAUCA		TGATAAGA GGCTAGCTACAACGA AGGGGCAT	9998
2322	CCUAUCUU A UCAACACU	519	AGTGTTGA GGCTAGCTACAACGA AAGATAGG	9999
2326	UCUUAUCA A CACUUCCG	522	CGGAAGTG GGCTAGCTACAACGA TGATAAGA	10000
2328	UUAUCAAC A CUUCCGGA	1943	TCCGGAAG GGCTAGCTACAACGA GTTGATAA	10001
	UUCCGGAA A CUACUGUU	1240	<u> </u>	10002
2338	OUCCGGAA A CUACUGUU	1944	AACAGTAG GGCTAGCTACAACGA TTCCGGAA	10003

2341	CGGAAACU A CUGUUGUU		AACAACAG GGCTAGCTACAACGA AGTTTCCG	10004
2352	GUUGUUAG A CGAAGAGG	526	CCTCTTCG GGCTAGCTACAACGA CTAACAAC	10004
2380	GAAGAAGA A CUCCCUCG	1945	CGAGGGAG GGCTAGCTACAACGA TCTTCTTC	10005
2397	CCUCGCAG A CGAAGGUC	1946	GACCTTCG GGCTAGCTACAACGA CTGCGAGG	10006
2409	AGGUCUCA A UCGCCGCG	1947	CGCGGCGA GGCTAGCTACAACGA TGAGACCT	10007
2427	CGCAGAAG A UCUCAAUC	1948	GATTGAGA GGCTAGCTACAACGA CTTCTGCG	10008
L		1949		10009
2433	AGAUCUCA A UCUCGGGA	1950	TCCCGAGA GGCTAGCTACAACGA TGAGATCT	10010
2442	UCUCGGGA A UCUCAAUG	1951	CATTGAGA GGCTAGCTACAACGA TCCCGAGA	10011
2448	GAAUCUCA A UGUUAGUA	1952	TACTAACA GGCTAGCTACAACGA TGAGATTC	10012
2456	AUGUUAGU A UUCCUUGG	547	CCAAGGAA GGCTAGCTACAACGA ACTAACAT	10013
2465	UUCCUUGG A CACAUAAG	1953	CTTATGTG GGCTAGCTACAACGA CCAAGGAA	10014
2467	CCUUGGAC A CAUAAGGU	1268	ACCTTATG GGCTAGCTACAACGA GTCCAAGG	10015
2469	UUGGACAC A UAAGGUGG	1269	CCACCTTA GGCTAGCTACAACGA GTGTCCAA	10016
2481	GGUGGGAA A CUUUACGG	1954	CCGTAAAG GGCTAGCTACAACGA TTCCCACC	10017
2486	GAAACUUU A CGGGGCUU	554	AAGCCCCG GGCTAGCTACAACGA AAAGTTTC	10018
2496	GGGGCUUU A UUCUUCUA	557	TAGAAGAA GGCTAGCTACAACGA AAAGCCCC	10019
2504	AUUCUUCU A CGGUACCU	562	AGGTACCG GGCTAGCTACAACGA AGAAGAAT	10020
2509	UCUACGGU A CCUUGCUU	563	AAGCAAGG GGCTAGCTACAACGA ACCGTAGA	10021
2520	UUGCUUUA A UCCUAAAU	1955	ATTTAGGA GGCTAGCTACAACGA TAAAGCAA	10022
2527	AAUCCUAA A UGGCAAAC	1956	GTTTGCCA GGCTAGCTACAACGA TTAGGATT	10023
2534	AAUGGCAA A CUCCUUCU	1957	AGAAGGAG GGCTAGCTACAACGA TTGCCATT	10024
2550	UUUUCCUG A CAUUCAUU	1958	AATGAATG GGCTAGCTACAACGA CAGGAAAA	10025
2552	UUCCUGAC A UUCAUUUG	1286	CAAATGAA GGCTAGCTACAACGA GTCAGGAA	10026
2556	UGACAUUC A UUUGCAGG	1287	CCTGCAAA GGCTAGCTACAACGA GAATGTCA	10027
2568	GCAGGAGG A CAUUGUUG	1959	CAACAATG GGCTAGCTACAACGA CCTCCTGC	10028
2570	AGGAGGAC A UUGUUGAU	1289	ATCAACAA GGCTAGCTACAACGA GTCCTCCT	10029
2577	CAUUGUUG A UAGAUGUA	1960	TACATCTA GGCTAGCTACAACGA CAACAATG	10030
2581	GUUGAUAG A UGUAAGCA	1961	TGCTTACA GGCTAGCTACAACGA CTATCAAC	10031
2590	UGUAAGCA A UUUGUGGG	1962	CCCACAAA GGCTAGCTACAACGA TGCTTACA	10032
2606	GGCCCCUU A CAGUAAAU	588	ATTTACTG GGCTAGCTACAACGA AAGGGGCC	10033
2613	UACAGUAA A UGAAAACA	1963	TGTTTTCA GGCTAGCTACAACGA TTACTGTA	10034
2619	AAAUGAAA A CAGGAGAC	1964	GTCTCCTG GGCTAGCTACAACGA TTTCATTT	10035
2626	AACAGGAG A CUUAAAUU	1965	AATTTAAG GGCTAGCTACAACGA CTCCTGTT	10036
2632	AGACUUAA A UUAACUAU	1966	ATAGTTAA GGCTAGCTACAACGA TTAAGTCT	10037
2636	UUAAAUUA A CUAUGCCU	1967	AGGCATAG GGCTAGCTACAACGA TAATTTAA	10038
2639	AAUUAACU A UGCCUGCU	594	AGCAGGCA GGCTAGCTACAACGA AGTTAATT	10039
2655	UAGGUUUU A UCCCAAUG	599	CATTGGGA GGCTAGCTACAACGA AAAACCTA	10040
2661	UUAUCCCA A UGUUACUA	1968	TAGTAACA GGCTAGCTACAACGA TGGGATAA	10041
2666	CCAAUGUU A CUAAAUAU	602	ATATTTAG GGCTAGCTACAACGA AACATTGG	10042
2671	GUUACUAA A UAUUUGCC	1969	GGCAAATA GGCTAGCTACAACGA TTAGTAAC	10043
2673	UACUAAAU A UUUGCCCU	604	AGGGCAAA GGCTAGCTACAACGA ATTTAGTA	10044
2685	GCCCUUAG A UAAAGGGA	1970	TCCCTTTA GGCTAGCTACAACGA CTAAGGGC	10045
2693	AUAAAGGG A UCAAACCG	1971	CGGTTTGA GGCTAGCTACAACGA CCCTTTAT	10046
2698	GGGAUCAA A CCGUAUUA	1972	TAATACGG GGCTAGCTACAACGA TTGATCCC	10047
2703	CAAACCGU A UUAUCCAG	611	CTGGATAA GGCTAGCTACAACGA ACGGTTTG	10048
2706	ACCGUAUU A UCCAGAGU	613	ACTCTGGA GGCTAGCTACAACGA AATACGGT	10049
2715	UCCAGAGU A UGUAGUUA	615	TAACTACA GGCTAGCTACAACGA ACTCTGGA	10050
2724	UGUAGUUA A UCAUUACU	1973	AGTAATGA GGCTAGCTACAACGA TAACTACA	10051
2727	AGUUAAUC A UUACUUCC	1313	GGAAGTAA GGCTAGCTACAACGA GATTAACT	10052
2730	UAAUCAUU A CUUCCAGA	621	TCTGGAAG GGCTAGCTACAACGA AATGATTA	10053
2738	ACUUCCAG A CGCGACAU	1974	ATGTCGCG GGCTAGCTACAACGA CTGGAAGT	10054
<u> </u>				10034

0-2-	G1 G1 GGG			· · · · · · · · · · · · · · · · · · ·
2743	CAGACGCG A CAUUAUUU	1975	AAATAATG GGCTAGCTACAACGA CGCGTCTG	10055
2745	GACGCGAC A UUAUUUAC	1317	GTAAATAA GGCTAGCTACAACGA GTCGCGTC	10056
2748	GCGACAUU A UUUACACA	625	TGTGTAAA GGCTAGCTACAACGA AATGTCGC	10057
2752	CAUUAUUU A CACACUCU	628	AGAGTGTG GGCTAGCTACAACGA AAATAATG	10058
2754	UUAUUUAC A CACUCUUU	1318	AAAGAGTG GGCTAGCTACAACGA GTAAATAA	10059
2756	AUUUACAC A CUCUUUGG	1319	CCAAAGAG GGCTAGCTACAACGA GTGTAAAT	10060
2774	AGGCGGGG A UCUUAUAU	1976	ATATAAGA GGCTAGCTACAACGA CCCCGCCT	10061
2779	GGGAUCUU A UAUAAAAG	634	CTTTTATA GGCTAGCTACAACGA AAGATCCC	10062
2781	GAUCUUAU A UAAAAGAG	635	CTCTTTTA GGCTAGCTACAACGA ATAAGATC	10063
2795	GAGAGUCC A CACGUAGC	1324	GCTACGTG GGCTAGCTACAACGA GGACTCTC	10064
2797	GAGUCCAC A CGUAGCGC	1325	GCGCTACG GGCTAGCTACAACGA GTGGACTC	10065
2809	AGCGCCUC A UUUUGCGG	1328	CCGCAAAA GGCTAGCTACAACGA GAGGCGCT	10066
2821	UGCGGGUC A CCAUAUUC	1329	GAATATGG GGCTAGCTACAACGA GACCCGCA	10067
2824	GGGUCACC A UAUUCUUG	1331	CAAGAATA GGCTAGCTACAACGA GGTGACCC	10068
2826	GUCACCAU A UUCUUGGG	644	CCCAAGAA GGCTAGCTACAACGA ATGGTGAC	10069
2836	UCUUGGGA A CAAGAUCU	1977	AGATCTTG GGCTAGCTACAACGA TCCCAAGA	10070
2841	GGAACAAG A UCUACAGC	1978	GCTGTAGA GGCTAGCTACAACGA CTTGTTCC	10071
2845	CAAGAUCU A CAGCAUGG	649	CCATGCTG GGCTAGCTACAACGA AGATCTTG	10072
2850	UCUACAGC A UGGGAGGU	1336	ACCTCCCA GGCTAGCTACAACGA GCTGTAGA	10073
2870	UCUUCCAA A CCUCGAAA	1979	TTTCGAGG GGCTAGCTACAACGA TTGGAAGA	10074
2883	GAAAAGGC A UGGGGACA	1342	TGTCCCCA GGCTAGCTACAACGA GCCTTTTC	10075
2889	GCAUGGGG A CAAAUCUU	1980	AAGATTTG GGCTAGCTACAACGA CCCCATGC	10076
2893	GGGGACAA A UCUUUCUG	1981	CAGAAAGA GGCTAGCTACAACGA TTGTCCCC	10077
2908	UGUCCCCA A UCCCCUGG	1982	CCAGGGGA GGCTAGCTACAACGA TGGGGACA	10078
2918	CCCCUGGG A UUCUUCCC	1983	GGGAAGAA GGCTAGCTACAACGA CCCAGGGG	10079
2929	CUUCCCCG A UCAUCAGU	1984	ACTGATGA GGCTAGCTACAACGA CGGGGAAG	10080
2932	CCCCGAUC A UCAGUUGG	1358	CCAACTGA GGCTAGCTACAACGA GATCGGGG	10081
2941	UCAGUUGG A CCCUGCAU	1985	ATGCAGGG GGCTAGCTACAACGA CCAACTGA	10082
2948	GACCCUGC A UUCAAAGC	1363	GCTTTGAA GGCTAGCTACAACGA GCAGGGTC	10083
2959	CAAAGCCA A CUCAGUAA	1986	TTACTGAG GGCTAGCTACAACGA TGGCTTTG	10084
2968	CUCAGUAA A UCCAGAUU	1987	AATCTGGA GGCTAGCTACAACGA TTACTGAG	10085
2974	AAAUCCAG A UUGGGACC	1988	GGTCCCAA GGCTAGCTACAACGA CTGGATTT	10086
2980	AGAUUGGG A CCUCAACC	1989	GGTTGAGG GGCTAGCTACAACGA CCCAATCT	10087
2986	GGACCUCA A CCCGCACA	1990	TGTGCGGG GGCTAGCTACAACGA TGAGGTCC	10088
2998	GCACAAGG A CAACUGGC	1991	GCCAGTTG GGCTAGCTACAACGA CCTTGTGC	10089
3001	CAAGGACA A CUGGCCGG	1992	CCGGCCAG GGCTAGCTACAACGA TGTCCTTG	10090
3010	CUGGCCGG A CGCCAACA	1993	TGTTGGCG GGCTAGCTACAACGA CCGGCCAG	10091
3016	GGACGCCA A CAAGGUGG	1994	CCACCTTG GGCTAGCTACAACGA TGGCGTCC	10092
3035	GUGGGAGC A UUCGGGCC	1384	GGCCCGAA GGCTAGCTACAACGA GCTCCCAC	10092
3051	CAGGGUUC A CCCCUCCC	1387	GGGAGGG GGCTAGCTACAACGA GAACCCTG	10093
3061	CCCUCCCC A UGGGGGAC	1395	GTCCCCCA GGCTAGCTACAACGA GGGGAGGG	10094
3068	CAUGGGGG A CUGUUGGG	1995	CCCAACAG GGCTAGCTACAACGA CCCCCATG	10095
3088	GAGCCCUC A CGCUCAGG	1400	CCTGAGCG GGCTAGCTACAACGA GAGGGCTC	10098
3101	CAGGGCCU A CUCACAAC	683	GTTGTGAG GGCTAGCTACAACGA AGGCCCTG	10097
3105	GCCUACUC A CAACUGUG	1406	CACAGTTG GGCTAGCTACAACGA GAGTAGGC	10098
3108	UACUCACA A CUGUGCCA	1996	TGGCACAG GGCTAGCTACAACGA TGTGAGTA	10100
3138	CUGCCUCC A CCAAUCGG	1422	CCGATTGG GGCTAGCTACAACGA GGAGGCAG	
3142	CUCCACCA A UCGGCAGU	1997	ACTGCCGA GGCTAGCTACAACGA TGGTGGAG	10101
3165	GGCAGCCU A CUCCCUUA	691	TAAGGGAG GGCTAGCTACAACGA AGGCTGCC	10102
3173	ACUCCCUU A UCUCCACC	694	GGTGGAGA GGCTACCTACAACGA AAGGGAGT	10103
3179	UUAUCUCC A CCUCUAAG	1436	CTTAGAGG GGCTAGCTACAACGA AAGGGAGTAA	10104
		T#30	CITIOTIC CCCTTCCTACAMCGA GGAGATAA	10105

3190	UCUAAGGG A CACUCAUC	1998	GATGAGTG GGCTAGCTACAACGA CCCTTAGA	10106
3192	UAAGGGAC A CUCAUCCU	1440	AGGATGAG GGCTAGCTACAACGA GTCCCTTA	10107
3196	GGACACUC A UCCUCAGG	1442	CCTGAGGA GGCTAGCTACAACGA GAGTGTCC	10108
3207	CUCAGGCC A UGCAGUGG	1447	CCACTGCA GGCTAGCTACAACGA GGCCTGAG	10109

Input Sequence = AF100308. Cut Site = YG/M or UG/U.
Stem Length = 8 . Core Sequence = GGCTAGCTACAACGA
AF100308 (Hepatitis B virus strain 2-18, 3215 bp)

TABLE X: HUMAN HBV AMBERZYME AND SUBSTRATE SEQUENCE

Pos	Substrate	Seg ID	Amberzyme	Seg ID
19	O	1448	GCCACCAG GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG AGGAAAGU	10110
87	GGAACAGU G AGCCCUGC	1449	GCAGGGCU GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG ACUGUUCC	10111
94	UGAGCCCU G CUCAGAAU	1450	AUUCUGAG GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG AGGGCUCA	10112
112	cueucucu e ccauauce	1451	CGAUAUGG GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG AGAGACAG	10113
132	AUCUDAUC G AAGACUGG	1452		10114
153	CCUGUACC G AACAUGGA	1453	UCCAUGUU GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG GGUACAGG	10115
169	AGAACAUC G CAUCAGGA	1454	UCCUGAUG GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG GAUGUUCU	10116
192	GGACCCCU G CUCGUGUU	1455	AACACGAG GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG AGGGGUCC	10117
222	UUCUUGUU G ACAAAAU	1456	AUJUJUGU GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG AACAAGAA	10118
315	CAAAAUUC G CAGUCCCA	1457	UGGGACUG GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG GAAUUUUG	10119
374	UGGUUAUC G CUGGAUGU	1458	ACAUCCAG GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG GAUAACCA	10120
387	AUGUGUCU G CGGCGUUU	1459	AAACGCCG GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG AGACACAU	10121
410	CUUCCUCU G CAUCCUGC	1460	GCAGGAUG GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG AGAGGAAG	10122
417	UGCAUCCU G CUGCUAUG	1461	CAUAGCAG GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG AGGAUGCA	10123
420	AUCCUGCU G CUAUGCCU	1462	AGGCAUAG GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG AGCAGGAU	10124
425	GCUGCUAU G CCUCAUCU	1463	AGAUGAGG GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG AUAGCAGC	10125
468	GEUAUGUU G CCCGUUUG	1464	CAAACGGG GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG AACAUACC	10126
518	CGGACCAU G CAAAACCU	1465	AGGUUUUG GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG AUGGUCCG	10127
527	CAAAACCU G CACAACUC	1466	GGAGGAAACUCC CU	10128
538	CAACUCCU G CUCAAGGA	1467	UCCUUGAG GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG AGGAGUUG	10129
269	CUCAUGUU G CUGUACAA	1468	UUGUACAG GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG AACAUGAG	10130
296	CGGAAACU G CACCUGUA	1469	UACAGGUG GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG AGUUUCCG	10131
631	GGGCUUUC G CAAAAUAC	1470	GUAUUTUG GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG GAAAGCCC	10132
687	UVACUAGU G CCAUUUGU	1471	ACAAAUGG GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG ACUAGUAA	10133
747	ტ	1472	AACCACAU GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG AUCCAUAU	10134
783	AACAUCUU G AGUCCCUU	1473	AAGGGACU GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG AAGAUGUU	10135
795	cccuunau a ccecueuu	1474	AACAGCGG GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG AUAAAGGG	10136
798	UUUAUGCC G CUGUUACC	1475	GGUAACAG GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG GGCAUAAA	10137
911	GGCACAUU G CCACAGGA	1476	uccueuce geaggaaacucc cu ucaaggacauceucege aauguecc	10138
978		1477		10139
997		1478	GGAGGAAACUCC	10140
1020		1479	GGAGGAAACUCC	10141
1023	GENNYGCC G CCCCUUVC	1480	GAAAGGGG GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG GGCAAACC	10142

1034	CCUTUCAC G CAAUGUGG	1481	CCACAUUG GGAGGAACUCC CU UCAAGGACAUCGUCCGGG GUGAAAGG	10143
1050	GAUAUUCU G CUUUAAUG	1482	CAUUAAAG GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG AGAAUAUC	10144
1058	всилимай в ссилимия	1483	UAUAAAGG GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG AUUAAAGC	10145
1068	CUUVAUAU G CAUGCAUA	1484	UAUGCAUG GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG AUAUAAAG	10146
1072	AUAUGCAU G CAUACAAG	1485	CUUGUAUG GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG AUGCAUAU	10147
1103	ACUTUCUC G CCAACUTA	1486	UAAGUUGG GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG GAGAAAGU	10148
1139	CAGUAUGU G AACCUUUA	1487	UNANGGUU GGAGGANACUCC CU UCANGGACAUCGUCCGGG ACAUACUG	10149
1155	Acceedu e cuceceaa	1488	UUGCCGAG GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG AACGGGGU	10150
1177	UGGUCUAU G CCAAGUGU	1489	ACACUUGG GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG AUAGACCA	10151
1188	AAGUGUUU G CUGACGCA	1490	UGCGUCAG GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG AAACACUU	10152
1191	UGUUUGCU G ACGCAACC	1491	GGUUGCGU GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG AGCAAACA	10153
1194	UUGCUGAC G CAACCCCC	1492	GGGGGUUG GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG GUCAGCAA	10154
1234	CCAUCAGC G CAUGCGUG	1493	CACGCAUG GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG GCUGAUGG	10155
1238	савсвсай в свивваас	1494	GUUCCACG GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG AUGCGCUG	10156
1262	ucuccucu e cceaucca	1495	UGGAUCGG GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG AGAGGAGA	10157
1265	cenence e vacevave	1496	GUAUGGAU GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG GGCAGAGG	10158
1275	UCCAUACC G CGGAACUC	1497	GAGUUCCG GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG GGUAUGGA	10159
1290	nccayecc e caneanan	1498	AAAACAAG GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG GGCUAGGA	10160
1299	сплаппп в спсесувс	1499	GCUGCGAG GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG AAAACAAG	10161
1303	UUUUGCUC G CAGCAGGU .	1500	ACCUGCUG GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG GAGCAAAA	10162
1335	UCGGGACU G ACAAUUCU	1501	AGAAUUGU GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG AGUCCCGA	10163
1349	ucueuceu e cucuccce	1502	CGGGAGAG GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG ACGACAGA	10164
1357	GCUCUCCC G CAAAUAUA	1503	UAUAUUUG GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG GGGAGAGC	10165
1382	ccaugecu e cuagecue	1504	CAGCCUAG GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG AGCCAUGG	10166
1392	UAGGCUGU G CUGCCAAC	1505	GUUGGCAG GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG ACAGCCUA	10167
1395	GCUGUGCU G CCAACUGG	1506	CCAGUUGG GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG AGCACAGC	10168
1411	GAUCCUAC G CGGGACGU	1507	ACGUCCCG GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG GUAGGAUC	10169
1442	cceuceec e cueraucc	1508	GGAUUCAG GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG GCCGACGG	10170
1445	UCGGCGCU G AAUCCCGC	1509	GCGGGAUU GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG AGCGCCGA	10171
1452		1510	GUCGUCCG GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG GGGAUUCA	10172
1458		1511	GGAGGGGU GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG GUCCGCGG	10173
1474	ල රහයයෙ	1512	GCCCCAAG GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG GGCCCCGG	10174
1489		1513	GGAGGAAACUCC CU	10175
1493		1514	CGGAGAAG GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG GGGCGGUA	10176
1501	ecuncuco e ccuanueu	1515	ACAAUAGG GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG GGAGAAGC	10177
1513		1516	GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG	10178
1528	CACGGGGC G CACCUCUC	1517	GAGAGGUG GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG GCCCCGUG	10179

1542	CUCUUUAC G CGGACUCC	1518	GGAGUCCG GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG GUAAAGAG	10180
1559	CCGUCUGU G CCUUCUCA	1519	UGAGAAGG GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG ACAGACGG	10181
1571	UCUCAUCU G CCGGACCG	1520	CGGUCCGG GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG AGAUGAGA	10182
1583	GACCEUGU G CACUUCGC	1521	GCGAAGUG GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG ACACGGUC	10183
1590	necacunc e concacco	1522	AGGUGAAG GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG GAAGUGCA	10184
1601	ucaccucu e caceucec	1523	GCGACGUG GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG AGAGGUGA	10185
1608	UGCACGUC G CAUGGAGA	1524	UCUCCAUG GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG GACGUGCA	10186
1624	ACCACCGU G AACGCCCA	1525	UGGGCGUU GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG ACGGUGGU	10187
1628	CCGUGAAC G CCCACAGG	1526	CCUGUGGG GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG GUUCACGG	10188
1642	AGGAACCU G CCCAAGGU	1527	ACCUUGGG GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG AGGUUCCU	10189
1654	AAGGUCUU G CAUAAGAG	1528	CUCUTANG GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG AAGACCUU	10190
1690	AUGUCAAC G ACCGACCU	1529	GGAGGAAACUCC	10101
1694	CAACGACC G ACCUUGAG	1530	CUCAAGGU GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG GGUCGUUG	10192
1700	cceaccun e aegcanac	1531	GUAUGCCU GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG AAGGUCGG	10193
1730	UGUUUAAU G AGUGGGAG	1532	CUCCCACU GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG AUJAAACA	10194
1818	AGCACCAU G CAACUUUU	1533	AAAAGUUG GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG AUGGUGCU	10195
1835	ucaccucu e ccuaauca	1534	UGAUTAGG GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG AGAGGUGA	10196
1883	CAAGCUGU G CCUUGGGU	1535	ACCCAAGG GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG ACAGCUUG	10197
1912	G ACCCG	1536	AUACGGGU GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG AAUGUCCA	10198
1959	nconnon e concoer	1537	UCAGAAGG GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG AAAAAAGA	10199
1966	neccuncu e acuncum	1538	AAAGAAGU GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG AGAAGGCA	10200
1985	UUCUAUUC G AGAUCUCC	1539	GGAGAUCU GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG GAAUAGAA	10201
1996	AUCUCCUC G ACACCGCC	1540	GGCGGUGU GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG GAGGAGAU	10202
2002	ncercec e cononecn	1541	AGCAGAGG GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG GGUGUCGA	10203
2008	cceccncn e cocnenvo	1542	AUACAGAG GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG AGAGGCGG	10204
2092	GUUGGGGU G AGUUGAUG	1543	GGAGGAAACUCC CU	10205
2097	O	1544	GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG	10206
2100	ტ	1545	GGAGGAAACUCC CU	10207
2237	ט	1546	GGAGGAAACUCC CU	10208
2251	G AAUAU	1547	GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG	10209
2282		1548	GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG	10210
2293	ט	1549	GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG	10211
2311	CACCAAAU G CCCCUAUC	1550	GGAGGAAACUCC CU	10212
2354		1551	GGAGGAAACUCC CU	10213
2388		1552	GGAGGAAACUCC CU	10214
2393	CUCGCCUC G CAGACGAA	1553	GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG	10215
2399	UCGCAGAC G AAGGUCUC	1554	GAGACCUU GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG GUCUGCGA	10216

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2415	ט	1556	GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG	10218
2420		1557	GGAGGAAACUCC CU	10219
2514		1558		10220
2549		1559	AUGAAUGU GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG AGGAAAAG	10221
2560		1560	UCCUCCUG GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG AAAUGAAU	10222
2576	ACAUUGUU G AUAGAUGU	1991	ACAUCUAU GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG AACAAUGU	10223
2615	CAGUAAAU G AAAACAGG	1562	CU UCAAGGACAUCGUCCGGG	10224
2641	UVAACUAU G CCUGCUAG	1563	GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG	10225
2645	CUAUGCCU G CUAGGUUU	1564	AAACCUAG GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG AGGCAUAG	10226
2677	AAAUAUUU G CCCUUAGA	1565	UCUAAGGG GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG AAAUAUUU	10227
2740	UUCCAGAC G CGACAUUA	1566	UNAUGUCG GGAGGANACUCC CU UCANGGACAUCGUCCGGG GUCUGGAN	10228
2742	ccagacge g acatuatu	1567	AAUAAUGU GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG GCGUCUGG	10229
2804	CACGUAGC G CCUCAUUU	1568	AAAUGAGG GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG GCUACGUG	10230
2814	CUCAUJUU G CGGGUCAC	1569	GUGACCCG GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG AAAAUGAG	10231
2875	CAPACCUC G APAAGGCA	1570	UGCCUUUU GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG GAGGUUUG	10232
2928	UCUUCCCC G AUCAUCAG	1221	CUGAUGAU GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG GGGGAAGA	10233
2946	UGGACCCU G CAUUCAAA	1572	UUUGAAUG GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG AGGGUCCA	10234
2990	CUCAACCC G CACAAGGA	1573	UCCUUGUG GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG GGGUUGAG	10235
3012	GGCCGGAC G CCAACAAG	1574	CUUGUUGG GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG GUCCGGCC	10236
3090	GCCCUCAC G CUCAGGGC	1575	GCCCUGAG GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG GUGAGGGC	10237
3113	ACAACUGU G CCAGCAGC	1576	GCUGCUGG GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG ACAGUUGU	10238
3132	G CCUCCA	1577	GGUGGAGG GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG AGGAGGAG	10239
51		1578	GGAAAGUA GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG AGGGCCCU	10240
106		1579	GGCAGAGA GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG AGUAUUCU	10241
148		1580	GUUCGGUA GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG AGGGUCCC	10242
198		1581	GGAGGAAACUCC CU	10243
219		1582	GGAGGAAACUCC CU	10244
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299	- 1	1584	GGAGGAAACUCC CU	10246
347		1585	GAGGACAA GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG AGGUUGGU	10247
350		1586	UUGGAGGA GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG AACAGGUU	10248
362	g uccuas	1587	AACCAGGA GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG AAAUUGGA	10249
381	g ngncng	1588	CGCAGACA GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG AUCCAGCG	10250
383		1589	GGAGGAAACUCC CU	10251
438		1590	GGAGGAAACUCC CU	10252
465	CAAGGUAU G UUGCCCGU	1591	ACGGCCAA GGAGGAACUCC CU UCAAGGACAUCGUCCGGG AUACCUUG	10253

555 MOCUCUANO U UUDCUCCH 1535 GANGGARAN GERGRANACIUC CU UUCANGGARAUCUCCORD AURAGGAR 10256 577 AUGUROCO U UNCANAAC 1534 UNCAGONA 10326 10256 577 AUGUROCO U UNCANAAC 1535 GUROLOGA 1536 10256 692 CUCCACONA 1536 GUROLOGA 10256 10256 774 CUCCACONA 1536 GUROLOGA 1537 10256 775 CUCCACONA 1536 GUROLOGA 10266 10266 770 CUCCACONA 1536 GUROLOGA 10266 10266 771 CUCCACONA 1536 GUROLOGA 10266 10266 771 COARAGUA 1601 AUGUROLOGA 10266 10266 810 AUGUROLOGA 1601 AUGUROLOGA 10266 10266 811 AUGUROLOGA 1602 AUGUROLOGA 10266 10266 812 CUCCACAACA 1602 CUCLAACA 10266 10266 10266 818	476	GCCCGUUU G UCCUCUAA	1592	UUAGAGGA GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG AAACGGGC	10254
UCCCUDAD G UNICADANC 1594 URADGRARACUC CU UCARGARANUCUCGOS ACUCAGO ANGUDIGOU G UNICADANC 1595 GUUTUURU G GAGGARANCUCC CU UCARGARANUCUCGOS AGUGGOGO CUCCACCU G UNICACCA 1596 CACACURA GAGGARANCUCC CU UCARGARANUCUCGOS AGUGGOGO UCCCCOACU G UNICACCA 1596 CACACURA GAGGARANCUCC CU UCARGARANUCUCGOS AGUGGOGO UCCCCOACU G UNICACCA 1500 AGACCAA GAGGARANCUCC CU UCARGARANUCUCGOS AGUGGOGO UCCAGARAN G UNICACCA 1501 ANGURAN GAGGARANCUCC CU UCARGARANUCUCCOGO AGUCGOGO AUGURANA 1501 ANGURAN GAGGARANCUCC CU UCARGARANUCUCCOGO AGUCCAA AUGURANA 1502 CCCAANUR GAGGARANCUCC CU UCARGARANUCUCCOGO AGUCCAA AUGURANA 1504 AUGURANA GAGGARANCUC CU UCARGARANUCUCCOGO AGUCCAA AUGURANA 1504 UUCUCURA GAGGARANCUC CU UCARGARANUCUCCOGO AGUCCAA AUGURANA 1504 UUCUCURA GAGGARANCUC CU UCARGARANUCUCCOGO AGUCCAA ARCACAA 1507 UUCUCURA GAGGARANCUC CU UCARGARANUCUCCOGO AGUCCAA ARCACAA 1508 ARCACAA GAGGARANCUC CU UCARGARANUCUCCOGO AUGUCCAGO AUGUCCAA ARCACAAA 1501 UUCUCULUA GAGGARANCUC CU UCARGACAAUCUCCAGO AUGUCCAA </td <td>555</td> <td>ACCUCUAU G UUUCCCUC</td> <td>1593</td> <td></td> <td>10255</td>	555	ACCUCUAU G UUUCCCUC	1593		10255
MUNICATURE OF UNICACED 1555 GUUDUIGUA GRAGARACUCC CU UCRAGGRACUCGUCGGG AGUECAG UGCCACUU GUUDGUGGG 1597 COCCURARA GRAGARACUCC CU UCRAGGRACUCGUCGGG ARAUGGCAG 1595 COCCURARA GRAGARACUCC CU UCRAGGRACUCGUCGGG ARAUGGCAG 1597 COCCURARA GRAGARACUCC CU UCRAGGRACUCGUCGGG ARAUGGGA 1597 COCCURARA GRAGARACUCC CU UCRAGGRACUCGUCGGG AUCUCCGGG AUCUCCCGGG AUCUCCGGG ACACAACA GRAGARACUCC CU UCRAGGRACUCGUCCGGG AAAACAACA 1601 AUCUCUCUC AUCUCCGGG AUCUCCGGGAACGGGGAACGGG CGGCCAACGGGAACGGGGAACGCC CU CCAAGGAACGCG CU CCAAGGAACGGGGAACGGG CCGGGAACGGGGAACGGG CGGGAAACGGGGAACGGGGGAACGGGGAACGGGGAACGGGGAACGGGGAACGGGGAACGGGGAACGGGGAACGGGGAACGGGGAACGGGGAACGGGGAACGGGGAACGGGGAACGGGGAACGGGAACGGGGAACGGGGAACGGGGAACGGGGAACGGGGAACGGGGAACGGGGAACGGGGAACGGG	266	UCCCUCAU G UUGCUGUA	1594	GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG	10256
CUEGANCOU G URANUCCA 1556 UDGGRARAUR GENGRARACUCC CU UCRAGGRARUCGUCGGG ARANGGGA CUECANUU G UUCAGGUA 1539 ACAGCARA GRAGGRARACUCC CU UCRAGGRARUCGUCGGG ARANGGGA CUCCARGUU G UUCAGGARAUCGUCGGGG ARANGGGARACUCC CU UCRAGGRARUCGUCGGG ARANGGARACUCG UCRAGGARAUCGUCGGGG ARANGGAGAACUCG CUCARGUU G URCACCARA 1600 AUGUUGUA ANDOCCCCCARA 1601 AUGUUGUA ANDOCCCCO 1602 AUGUUGUA ANDOCCCCU G URARGARACUCC CU UCRAGGRARUCGUCGGG ARANGARA UUCAGGARAUCGUCGGGG ARANGARACUCC CU UCRAGGRARUCGUCGGG ARANGARA UUUCUUU G UCAUUGGG 1603 CCCAAANAA GARGGARACUCC CU UCRAGGRARUCGUCGGG ARANGARA UUUCUUU G UCAUUGGG 1604 UUCUUURA GARGGARACUCC CU UCRAGGRARUCGUCGGG ARANGARA CAAAACUC G UACACAAA 1604 UUCUURURA GARGGARACUCC CU UCRAGGRARUCGUCGGG ARANGARA AACAUUUR 1606 UCURAACAA GARGGARACUC CU UCRAGGRARUCGUCGGGGA ARANGARA AACAUUUR 1607 UCURAACAA GARGGARACUC CU UCRAGGARAUCGUCGGGGA ARANGARA AACAGARU 1607 UCURAACAA GARGGARAACUC CU UCRAGGARAUCGUCGGGA ARANGARA AACAGARU 1607 UCURAACAA GARGGARAACUC CU UCRAGGARAUCGUCGGGGA ARACAACAA AACAGARU 16	572	AUGUUGCU G UACAAAAC	6	GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG	10257
UGECARUNU G UUCAAGUS 1557 CCACUGAA GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG AGAGGGGGGGGGG	602	CUGCACCU G VAUVCCCA	1596	GGAGGAAACUCC	10258
CCCCACU G UDICOGCUM 155B AAGCCARA GERGGAAACUCC CU UCAAGGACUCGUCCGGG AUCAUCC UGGAUGAN G UGGAUUTG 1559 CAAAACCA GERGGAAACUCC CU UCAAGGACUCGUCCGGG AUCAUCC CCAAGUU G UDICCAAU 1601 AUGGUUGA GERGGAAACUCC CU UCAAGGACUCGGGG AUCAUCC AUGCCGCU G UUACCAAU 1602 AUGGUAACUCG CU UCAAGGACAUCGUCCGGG AUCAUCC AUGCCGCU G UUACCAAU 1603 CCCAAAAC AGAGGAAACUCC CU UCAAGGACAUCGUCGGGG AUAUCCUCCGGG AUAUCCUCGGG AUAUCGUCCGGG AUACCUCG CACAAAAUG U UGAAACAU 1610 AAGCACAU GAAAAACCC CU UCAAGGACAUCGUCCGGG AUACCUCC CU UCAAGGACAUCGUCCGGG AUACCUC CU CAAGGACAUCGUCCGGG AUACCUC CU CAAGGACACCCC CU CAAGGACAUCGGGG AUACCUC CU CAAGGACACCGGG AUACCUC CU CAAGGACACCAGGGACACGGGG AUACCCC CU CAAGGACACCGCGGG AUACCGGGG AACACCACGC CU CAAGGACACCGGG AAG	694	UGCCAUUU G UUCAGUGG	1597	GGAGGAAACUCC	10259
UNIGORATION O UNIGORATION 15.99 CARANCCA GRAGGARACUCC CU UCAAGGACUGUCGOGGG ARACUGA CCCAAGUG O UNACARA 16.00 ANGGUGAA AUGUGAA AUGUGAA AUGCCGCO O ULAGAGACAUCGUCGGG ARACUGA AUGCGAACA GGAGGARACUCC CU CAAGGACAUCGUCGGG ARACAAA UUUCUUUU O UCUUDGG 16.03 CCCAAAGA GGAGGAAACUCC CU CAAGGACAUCGUCGGG ARACAAAA AUGCAAAAA 16.04 UUUUUGAA GGAGGAAACUCC CU CAAGGACAUCGUCGGG ARACAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA	724	ccccacu a ucuaecuu	1598	CU UCAAGGACAUCGUCCGGG	10260
AUGURDANCE UNCARACAD 1600 AUGURDANA GENGGANACUCC CU UCPAGGACAUCGUCGGGG ADANGANA 1601 AUUGUAUN GENGGANACUCC CU UCPAGGACAUCGUCGGGG ADANGANA 1601 CCCDANUN GENGGANACUCC CU UCPAGGACAUCGUCCGGG ADANGANA 1603 CCCDANUN GENGGANACUCC CU UCPAGGACAUCGUCCGGG ADANGANA 1604 UUUUUGUN GENGGANACUCC CU UCPAGGACAUCGUCCGGG ADANGAUU CAACAGANA GENGGANACUCC CU UCPAGGACAUCGUCCGGG ADACUUCC AACAGANA GENGGANACUCC CU UCPAGGACAUCGUCCGGG ACAUGGGCACAGU G UUCCCCUC 1613 AGAGGAAA GENGGANAACUCC CU UCPAGGACAUCGUCCGGG ACAUGGGCACAGU G UUCCCUCU 1613 AGAGGAAA GENGGANAACUCC CU UCPAGGACAUCGUCCGGG ACACAGGG ACACAGGA GENGGANACUCC CU UCPAGGACAUCGUCCGGG ACACAGGG GENGGANACUCC CU UCPAGGACAUCGUCCGGG ACACAGGG GENGGANACUCC CU UCPAGGACAUCGUCCGGG ACACAGGG GENGGANACUCC CU UCPAGGACAUCGGCCGGG ACACAGGG GENGGANACUCC CU UCPAGGACAUCGGCCGGG ACACAGGG GENGGANACUCC CU UCPAGGACAUCGGCCGGG ACACAGGG GENGGANACUCC CU UCPAGGACAUCGGCCGGG ACACAGGG GENGCANACUCC CU UCPAGGACAUCGGCCGGG ACACAGGG GENGCANACCC CU UCPAGGACAUCGGCCGGG ACACAGGG GENGCANACCC CU UCPAGGACAUCGGCCGGG ACACAGGG GENGCANACC CU UCPAGGACAUCGGCCGGG ACACAGGG GENGCANACC CU UCPAGGACAUCGGCGGG ACACAGGG GENGCANACC CU UCPAGGACAUCGGCCGGG ACACAGGG GENGCANACC CU UCPAGGACAUCGGCCGGG ACACAGGG GENGCANACC CU UCPAGGACAUCGGCGGG ACACAGGGGAAACGGCCC U UCPAGGACAUCGGCGGGGAACGCGGGGAACGGGGAACGGGGGAACGGGG	750	UGGAUGAU G UGGUUUUG	1599		10261
AUGGRAND 1601 AUDGGRANACCE CU UCARGGACAUCCEGGG AGARGANA UNUCUUUD 1602 CCCCAANAGA GARGAANACUCE CU UCARGGACAUCGUCCGGG ANANGANA UUGGGAUAU G UCARAAAA 1604 UUUUUGUN GGAGGAAACUCE CU UCARGGACAUCGUCCGGG AUUUUGU AACAUAUU G UACAAAAA 1604 UUUUUGUN GGAGGAAACUCE CU UCARGGACAUCGUCCGGG AUUUUGU AACAUAUU G UACAAAAA 1605 UUUUUGUN GGAGGAAACUCE CU UCAAGGACAUCGUCCGGG AUUUUGU AACAUAUU G UACAAAAA 1606 UUCUUAAA GGAGGAAACUCE CU UCAAGGACAUCGUCCGGG AUUUUGU AACAAUAU G UGAACAGA 1607 AUCACUUA GGAGGAAACUCE CU UCAAGGACAUCGUCCGGG AUUUUGU AACACAAUAU G UGAACAA 1608 UUCGUUGA GGAGGAAACUCE CU UCAAGGACAUCGUCCGGG AUUUUGU AACACAAUAU G UGAACAU 1610 AAAGACCCA GAAGAAACUCE CU UCAAGGACAUCGUCCGGG AUUUCGU AACACAAUCU G UGAACAUU 1611 AAAGACCCA GAAGAAACUCE CU UCAAGGACAUCGUCCGGG AUUUCGU AACAAUCU G UGAGCAACUC CU UCAAGGACAUCGUCCCGGG AUUGGUC AACAAUCU G UGAGCAACUCGUCCGGG AAGGACACCCC CU UCAAGGACAUCGUCCGGG AACAGUC AACAAUCU G UGUCCUC U 1611 AAGGGAACA GGAGGAAACUC CU UCAAGGACAUCGUCCGGG AAGGACACCCCGGG AAGGACACCCCGGG AAGGACACCCCGGG AAGGACACCCCCGGG AAGGACACCCCGGG AAGGACACCCCGGG AAGGACACCCCGGG AAGGACACCCCGGG AAGGACACCCCCGGG AAGGACACCCCGGG AAGGACACCCCGGG AAGGACACCCCGGG AAGGACACCCCGGG AAGGACACCCCCCGGG AAGGACACCCCCCCGGG AAGGACACCCCCGGG AAGGACACCCCCCGGG AAGGACACCCCCCCGGG AAGGACACCCCCGGG AAGGACACCCCGGG	771	CCAAGUCU G UACAACAU	1600	AUGUUGUA GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG AGACUUGG	10262
UNDCOUNDED CECCHAMARA GGRAGGAAACTIC UNDAGGRACOURD UNDCOUNDE 1603 CCCCAAMARA GGRAGGAAACTIC UNDAGGRACHUCGUCCOGG ANDAUGUA ANCHANDA 1604 UUDUUGUA UNDAGGRACHUCGUCCOGGG ANDAUGUA ANCHANDU G UNDUGUAGU GGRAGGAAACTIC UUDAGGGACHUCGUCCOGGG ANDAUGUA ANCHANDU G UUDUUGUA GGRAGGAAACTIC UUDAGGGACHUCGUCCOGGG ANDAUGUA CAAAAUGU G UUDUUGUA GGRAGGAAACTIC UUCAAGGACHUCGUCCOGGG ANDAUGUA CAAAAUGU G UUDAGGACHUCGUCCOGGG ANDAUGUA GGRAGGAAACTIC CU UCAAGGACAUCGUCCOGGG ANDAUGUA AACHUCU G UUCAGUAA GGRAGGAAACTIC CU UCAAGGACAUCGUCCOGGG ANDAUGUA CACGCANU G UUGGAGAA GGRAGGAAACTIC CU UCAAGGACAUCGUCCOGGG ANDAUGUA CACGCANU G UUGGAGAA GGRAGGAAACTIC CU UCAAGGACAUCGUCCOGGG ANDAUGUA CACGCANU G UUCGCAGGA AAGACCC GGRAGGAAACTIC CU UCAAGGACAUCGUCCOGGG ANDAGGAGA AACAGUCA L613 AAGACCC GGRAGGAAACTIC CU UCAAGGACAUCGUCCOGGG ANDACGAGGA AACAGUCA L613 AAGACACA GGRAGGAAACTIC CU UCAAGGACAUCGAGGA AACAGUC	801	AUGCCGCU G UUACCAAU	1601	AUUGGUAA GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG AGCGGCAU	10263
UGGGANUAGG 1603 CCCCANUUA GGAGGAACUCC CU UCAAGGACUCGGCGG ANAUCCCA AACAUNUG UNCABABA 1604 UUUUUGUA GAAGGAACUCGUCCGGG ANAUCCCA AUCAAANGG 1605 UCUUAAAA GAAGGAACUCGUCCGGG AGAAGUUC CAAAAUG 1606 UCUUAAAA GAAGGAAACUCC CAAAAUG 1607 UCUUAAAA GAAGGAAACUCC CAAAAUG 1608 UCCUUAAA GAAGGAAACUCCGGGG AGAAGAUC CAACAAUG 1609 AACAGAAACUC UCAAGGACAUCGUCCGGG AAUUUUUG AACAAAUU 1619 AAACCCA GAAGGAAACUC UCAAGGACAUCGUCCGGG AUUUUUUU CACCCAAU UAACCCAA GAAGGAAACUC UCAAGGACAUCGUCCGGG AUUUCGUC CUCAAGGACAUCGUCCGGG AUUUCGUC AACACAAU 1610 AAACCCAA GAAGGAAACUC UCAAGGACAUCGUCCGGG AUUCCGUC AACAGUA 1611 AAACGAAA GAAGGAAACUC UCAAGGACAUCGUCCGGG AUUCGUCGGG AACCUUU 1612 AAACGAAA GAAGGAAACUC UCAAGGACAUCGUCCGGG AUUCGUCGGG AACCUUC 1613 AAACCAAA GAAGAGAACUC UCAAGGACAUCGUCCGGG AUUUCGUC AACAAUUC <	818	wwcwww a wcwwegg	1602	CCCAAAGA GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG AAAAGAAA	10264
AACAUANU G UNCAAAAA 1604 UUUUUUUUU GAAAACU GAAGAAACUCC CU UCAAGGACAUCGUCGGG AUUUUGAU AUCAAAAUG GUUUUUAGA 1605 CUUAAAACU GAAGAAACUCC CU UCAAGGACAUCGUCGGG ACAUUUUGA CAAAAUUG G UNAACAG 1606 CUUAAAACU GAAGAAACUC CU UCAAGGACAUCGUCGGG ACAUUUUGA AACUUCCU G UAAACAG 1608 VUCCUUUAAA GAAGAAACUC CU UCAAGGACAUCGUCCGGG AUUUUUGA GAACUUCU G UAAACAG 1609 AANACCAA AACGAAUU C UGAAGGACAUCGUCCGGG AUUCGUCGGG AUUCUUCCAAGAACUCCUCGGG AUUCUUUCCAACACAUCUUCCGGG AUUCCUUCCAACAAACACAACAC	888	UGGGAUAU G UAAUUGGG	1603	CCCAAUUA GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG AUAUCCCA	10265
AUCAAAAU G UGUUUUAG 1605 CUAAAAAC GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG AUUUUGAU CAAAAGUU G UUUAGGA 1606 UCCUAAAA GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG AGAUUUUG AACUUCCU G UAAAACAG 1609 AAAGACUUU GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG AGAUUUUG AAAAGUAU G UGAACAU 1609 AAAAACCACA GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG AUACUUUC AAAAGUAU G UGAACUU 1610 AAAAACCA GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG AUACUUUC CACGCAAU G UGAACCUU 1611 AAAGACCA GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG AUACGUC AACGAAU 1613 AAGGAGAAA GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG AUACGUC AACCCAAU 1613 AAGGAGAAA GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG AUACGUC AACCCAAU 1613 AAGGAGAAA GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG AAACGUC AACCCAAU 1613 AAGGAGAAA GGAGGAAACUCC UCAAGGACAUCGUCCGGG AAACGUC AACCUUCU 1613 AAGAGAAAA GGAGGAAAACUCC UCAAGGACAUCGUCCGGG AAACGUCCGGG AAACGUCC ACCUUCU 1614 AAGAGAAAA GGAGGAAAACUCC UCAAGGACAUCGUCCGGG AAACGUCC ACCUUCU 1615 AAGAGAAAA GGAGGAAAACUCC UCAAGGACAUCGUCCGGG AAACGUCCCCGGG AAACGUCCCCGGG AAACGUCCCCCGGG AAACGUCCCCCGGG AAACGUCCCCCCCGGG AAAACGUCCCCCCCGGG AAAACGUCCCCCCCCCC	927	AACAUAUU G UACAAAAA	1604	UUUUUGUA GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG AAUAUGUU	10266
CARARIGU G UNUTAGGA 16.06 UCCUMARA GRAGGARACUCC CU UCARGGACAUCGUCGGG ACAUUUUG AACUUCCU G UNAACAGG 16.07 CCUGUUUA GGAGGARACUCC CU UCAAGGACAUCGUCGGG AUUCGUU AACUUCCU G UAAACAGA 16.08 AAGGACACA GGAGGARACUCC CU UCAAGGACAUCGUCCGGG AUUCGUU AACAGCUU 16.09 AAGGUUCA GGAGGARACUCC CU UCAAGGACAUCGUCCGGG AUUCGUU CACGCAAU G UGGAUCU 16.11 AAGGUUCA GGAGGARACUCC CU UCAAGGACAUCGUCCGGG AUUCGUU AACAGUU G UGAACCUU 16.11 AAGGUUCA GGAGGARACUCC CU UCAAGGACAUCGUCCGGG AUUCGUU AACAGUU G UGAACCUU 16.11 AAGGUUCA GGAGGARACUCC CU UCAAGGACAUCGUCCGGG AUUCGUU AACAGUU G UUCCUCCU 16.12 AGGCARAA GGAGGARACUCC CU UCAAGGACAUCGUCCGGG AUUCGUU AACAGUU G UUCCUCCU 16.13 AGGCARAA GGAGGARACUCC CU UCAAGGACAUCGUCCGGG AAACGUU ACAAUUCU G UCCUCCUC 16.14 AGAGCARAA GGAGGARACUCC CU UCAAGGACCGGGG AAACGUUC ACAAUUCU G UCCUCCUC 16.15 GAGCARAA GGAGGARACUCC CU UCAAGGACAUCGUCCGGG AAACGUC ACAAUUCU G UCCUCCUC 16.15 GAGCARAA GGAGGARACUCC CU UCAAGGACAUCGUCCGGG AAAACGUC ACAAUUCU G UCCUCCUU 16.15 GAGCARAA GGAGGARACUCC CU UCAAGGACAUCGUCCGGG AAAAGGAC	944	AUCAAAAU G UGUUUUAG	1605	CUAAAACA GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG AUUUUGAU	10267
AACUUCCU G UAAACAGG 1607 CCUGUUUN GGAGGAAACUCC CU NCAAGGACAUCGUCGGG AUACUUC GAAAGUAU G UGAACGAA 1608 AAGAGCAA GGAGGAAACUCC CU UCAAGGACAUCGUCGGG AUACUGU CACGCAAU G UGGGUCUU 1610 AAGAGCAA GGAGGAAACUCC CU UCAAGGACAUCGUCGGG AUACUGUU CACGCAAU G UGGGUCUU 1611 AAGACCA GGAGGAAACUCC CU UCAAGGACAUCGUCGGG AUACUGUU CACGCAAU G UGGAUAU 1612 AAGAGCAAACUCC CU UCAAGGACAUCGUCGGG AUACUGUU UGCCAAGU G UUGCCUC 1612 AAGAGCAAACUCC CU UCAAGGACAUCGUCGGG AUACUGUU UGCCAAGU G UUGCCUC 1613 AGGAGAAACUCC CU UCAAGGACAUCGUCGGG AAUACUGU AACUUUGU G UUUGCUCU 1614 AGAGGAAACUCC CU UCAAGGACAUCGUCGGG AAAGGUC ACCUUUGU G UUUGCUC 1615 AGAGGAAACUCC CU UCAAGGACAUCGUCGGG AAAGGUC ACCUUUGU G UUCUCCUC 1616 GAGCACAGA GGAGGAAACUCC CU UCAAGGACAUCGUCGGG AAAGGGC ACCUUGCC 1616 GAGCACAGA GGAGGAAACUCC CU UCAAGGACAUCGUCGGG AAAGGGC AAGAGCACA ACCUUGU G UCCUCCU 1618 GAGCACAA GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG AAAGAGCC CCCCGUC	946	CAAAAUGU G UUUUAGGA	1606	UCCUAAAA GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG ACAUUUUG	10268
GARAGUAU G UCAACGAA 1608 UUCGUUGA GAGGAAACUCC CU UCAAGGACAUCGUCCGGG AUACUUUC AACGAAUU G UGGGUCUU 1609 AAGACCA GAGGAAACUCC CU UCAAGGACAUCGUCCGGG AUACGUU CACGCAAU G UGGACUU 1610 AAUAUCCA GAGGAAACUCC CU UCAAGGACAUCGUCGGG AUACGUU AACAGUU G UGUCCUU 1611 AAGGUUCA GAGGAAACUCC CU UCAAGGACAUCGUCCGGG AUACGUU AACCUUGU 1613 AGGGACAACUCGUCCGGG AUACGUU AACCUUGU 1614 AGGGAAACUCC AACCUUGU 1615 AGGGAAACUCC ACCUUGU G UUUGCCGG ACUAAGGACAUCGUCCGGG AAAGGUU ACCUUGU G UUUGCCCU 1615 AGGGACAAC ACCUUGU G UUUGCCCC 1616 AGGCACAA ACAAUUCU G UCCGCCCC UCAAGGACAUCGUCCGGG AAAGCUC ACAAUUCU G UCCGCCCC UCAAGGACAUCGUCCGGG AAAGCCCC ACAAUUCU G UCCGCCCC UCCGAGCAA GCCCCAAU G UUCCCCCG GAGCACAGA GCCCCAACU G UUCACCACA GAGCACAGA GCCCCAACU G UCCACACA GAGGAAACUCC CCCCGUCU G UCCACACA GAGCACACA GCCCCAACU G UCCACACA	963	AACUUCCU G UAAACAGG	1607	CCUGUTUA GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG AGGAAGUU	10269
AACGAAUU G UGGGUCUU 1609 AAGACAACUC GRAGGAAACUCC CU UCAAGGACACUCGGG AAUUCGUU CACCCAAU G UGGAUAUU 1610 AAUBUCCA GGAGGAAACUCC CU UCAAGGACAUCGUCGGG AUUCGUUG AACCAGUU G UGCCAAGU 1611 AAGGUUCA GGAGGAAACUCC CU UCAAGGACAUCGUCGGG AUUCGUU GAACCUUU G UGUCCCCU 1613 AGGAGACA GGAGGAAACUCC CU UCAAGGACAUCGUCGGG AAAGGUU ACCUNUG G UUUUGCUC 1614 AGGAGAAA GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG AAAGGUU AGGAGUU ACCUNUG G UUUUGCUC 1615 AGGAGAAA GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG AAAGGUC AGAAAUUGU ACCUNUGG U UUUUGCUC 1616 GAGCACGA GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG AAAGGUC AGAAGGACA ACAAUUCU G UGUUGCCC 1617 GAGCACGA GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG AAAGGUC AGAAGGACA ACAAUUCU G UCUUCCCA 1618 GAGCACGA GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG AAAGGCC AGAAGGACA GCUCCUUU G UUUACGUC 1618 GAGCAGAA GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG AAAGGCC CCCCUAUU G UUCACCACC 1619 GAGCAGAAACCC GAGGGAAACCCC UCAAGGACAUCGUCCGGG AAAGGCC CCCCGUCU G UCACGACC 1621 GAGCAGAACCCC UCAAGGACACCCGGG AAAGGCC CCCCGGCCC UCAAGGACCCGGG AAAGGCC	166	GAAAGUAU G UCAACGAA	1608	UUCGUUGA GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG AUACUUUC	10270
CACGCAAU G UGGAUAUU 1610 AAUAUCCA GGAGGAAACUCC CUAAGGACAUCGUCCGG AUACGUG AACAGUU G UGGACUU 1611 AAGGUUCA GGAGGAAACUCC CU UCAAGGACAUCGUCCGG AUACGUU UGCCAAGU G UUUGCUGA 1612 UCAGCAAA GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG ACAUGGUC GAACCUUU G UUUUGCUC 1613 AGGAGGAAACUCC CU UCAAGGACAUCGUCCGGG AAGGUC ACCUUUGU G UUUUGCUC 1614 AGGAGGAAACUCC CU UCAAGGACAUCGUCCGGG AAGCGCC AGCCGUU G UUUUGCUC 1615 GAGCACGA GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG AAGCGCC ACAAUUCU G UUUUACGUC 1616 GAGCACGA GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG AAGCGCC GCUUAUU G UGCCUUCU 1619 GACGACGA GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG AAGCGCC CCCCGUUU G UGCCUUCU 1620 AGAGGGA GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG AAUGGCC CCCCGUUU G UGCCUUCU 1619 GACGUAAA GAGGGAAACUCC CU UCAAGGACAUCGUCCGGG AAUGGCC CCCCGUUU G UGCCUUCU 1621 GACGGAAACUCC CU UCAAGGACAUCGUCCGGG AAUGGCC CCCCGUUC CCCCGUUU U UCCAGGCC 1622 AGAGGAAACUCC CU UCAAGGACAUCGUCCGGG AAUGGCC CCCCGUUU U UCCAGGCC </td <td>1002</td> <td>AACGAAUU G UGGGUCUU</td> <td>1609</td> <td>AAGACCCA GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG AAUUCGUU</td> <td>10271</td>	1002	AACGAAUU G UGGGUCUU	1609	AAGACCCA GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG AAUUCGUU	10271
AACHGUAU G UGBACCUU 1611 AAGGUUCA GGAGGAAACUCC CU UCAAGGACAACUCGUCGGG AUAGGAAA UGCCAAGU G UUUGCUGA 1612 UCAGGAAA GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG AAGGGACA GAACCUUU G UGUCCUCU 1613 AGGAGAAACUCC CU UCAAGGACAUCGUCCGGG AAAGGACU AGCCUUUGU G UCUCCCCUU 1614 AGGAGAAAAAA GAGCGAAAACUCC CU UCAAGGACAUCGUCCGGG AAAGGACU AGCCGUUU G UUUACGUC 1615 GAGCACAAAAA GAGCGAAAACUCC CU UCAAGGACAUCGUCCGGG AAAGGACCU ACAAUUCU G UUUACGUC 1618 GAGCGAAAACUCC CU UCAAGGACAUCGUCCGGG AAAGGACG CGUCCUUU G UUUACGUC 1619 GAGCGAAAACUCC CU UCAAGGACAUCGUCGGG AAAGGACG CGUCCUUC 1619 GAGCGAAAACUCC CU UCAAGGACAUCGUCGGG AAAGGACG CGUCCUUC 1620 AGAGGAAACUCC CU UCAAGGACAUCGUCGGG AAAGGACG CGCCCGUU UUCACUUC 1620 AGAGGAAAACUCC CU UCAAGGACAUCGUCGGG AAGGACG CCCCGUU UUCACUUC 1620 AGAAGGAA GAGCGAACC UCAAGGACAUCGUCGCGGG AAGGA	1039	CACGCAAU G UGGAUAUU	1610	AAUAUCCA GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG AUUGCGUG	10272
UGCCAAGU G UUUGCUGA 1612 UCAGCAAA GAAGAAACUCC CU UCAAGGACAUCGUCCGGG ACUGGCA ACCUUUGU G UGUCUCCU 1613 AGGAGACA GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG AAAGGUU ACCUUUGU G UCUCCUCU 1614 AGAGGAAAACUCC CU UCAAGGACAUCGUCCGGG AAAGGUU AGCCGCUUU G UUUUGCUC 1616 GAGCACAAA GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG AAAGGUU ACAAUUCU G UCGUGCCA 1617 UGGCAGCA GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG AAAUUGU GCUUAGGCU 1618 GAGCACGA GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG AAAUUGU GCUUAGGCU 1619 GAGCGUAAA GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG AAAGGGC CGCCUANU G UUACGACC 1619 GAGCGUAAA GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG AAAGGCG CGCCCUANU G UGCCUUCU 1620 AGAAGGCA GGAGGAAACUCC CU UCAAGGACAUCGGGG AAAGGCG CCCCGGUCU G UCACCUUC 1621 GAAGGGCA GGAGGAAACUCC CU UCAAGGACAUCGGGG AAAGGCG CCCCGGUCU G UCAACGAC 1621 GAAGGGCA GGAGGAAACUCC CU UCAAGGACAUCCGGG AAAGGCG CCCCGGUCU G UCAACGAC 1623 UCAAGGACACC UCAAGGACAUCCGGG AAAGCCC CCCGGUCCUU	1137	AACAGUAU G UGAACCUU	1611	AAGGUUCA GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG AUACUGUU	10273
GAACCUUU G UGUCUCCU 1613 AGGAGAACA GGAGAAACUCC CU UCAAGGACAUCGUCCGGG AAAGGUUC ACCUUUGU G UCUCCUCU 1614 AGAGGAAA GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG ACAAAGGU AGCUUUGU G UUUUGCUC 1615 GAGCAAAA GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG AAAGGGCU ACAAUUCU G UUUUGCUC 1616 GAGCAGCA GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG AAAGGGC GCUAGGCU 1618 GAGGAAAACUCC CU UCAAGGACAUCGUCCGGG AAAGGAC GGACCUAAA GCUCCUUU G UUUACGUC 1618 GACGUAAA GGUCGUUU G UUCCCUCC 1620 AGAGGAAAACUC CCCGUCU G UCCCUAUU G UCCCUAU 1620 CCCGUCU G UCCCCUAU 1620 AGAGGAAAACUC UCAAGGACAUCGUCCGGG AAAGGCG CCCGUCU G UCCCUAUU G UCCCUAU 1620 AGAGGGAAACCC UCAAGGACAUCGGG AAAGGCG CCCCGUCU G UCCCUUU 1621 GAAGUGGA GAGGAAAACUC UCAAGGACAUCGGG AAAGGCG CCCGUCU G UCCCUUU 1621 GAAGUGGA GAGGAAAACUC UCAAGGACAUCGGG AAAGGCGGG AAAGGCCGGG AAAGGCCGGG AAAGGCCCGGG AAAGGCCGGG AAAGGCCCGGG AAAGGCCCGGG AAAGGCCCGGG AAAGGCCCGGG AAAGGCCGGG AAAGGCCCGGG AAAGGCCCGGG AAAGGCCCGGG AAAGGCCCGGG AAAGGC	1184	UGCCAAGU G UUUGCUGA	1612		10274
ACCUUDGU G UCUCCUCU 1614 AGAGGAAA GGAGAAACUCC CU UCAAGGACAUCGUCGGG AAGCGCU AGCCGCUU G UUUUGCUC 1615 GAGCACGA GGAGGAAACUCC CU UCAAGGACAUCGUCGGG AAGCGCU ACAAUUCU G UCGUGCUC 1616 GAGCACGA GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG AGACUAGC GCUAGGCU G UGCUGCCA 1619 GAGCACGA GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG AACCGGG CGUCCUUU G UUACGUC 1620 AGAAGGCA GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG AAUAGGCG CGCCUAUU G UACCGACC 1620 AGAAGGCA GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG AAUAGGCG CGCCUAUU G UACCGACC 1621 GAGGCACA GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG AAUAGGCG CCCCGUCU G UGCCUUCU 1622 AGAAGGCA GGAGGAAACUCC CU UCAAGGACAUCGUCGGG AAUAGGCG CCCCGUCU G UGCCUUCU 1622 AGAAGGCA GGAGGAAACUCC CU UCAAGGACAUCGUCGGG AAUAGGCG CCCCGUCU G UGCCUUCU 1623 UAAACACA GGAGGAAACUCC U UCAAGGACAUCGUCGGG AAUACGCG CCCCGUCU G UGCCUUCU 1623 UAAACACA GGAGGAAACUCC U UCAAGGACAUCGUCGGG AACCGCGG AAUACGCGGG AACCGCGGG ACCCCCCCCCC	1251	GAACCUUU G UGUCUCCU	1613		10275
AGCCGCUU G UUUUGCUC 1615 GAGCACGA GAGGAAACUCC CU UCAAGGACAUCGUCGGG AAGUGU ACAAUUCU G UCGUGCUC 1616 GAGCACGA GGAGGAAACUCC CU UCAAGGACAUCGUCGGG AGAAUUGU GCUAGGCU G UGCUGCCA 1617 UGGCAGCA GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG AAAGGACG CGUCCUUU G UUUACGUC 1618 GACGUAAA GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG AAAGGACG CGCCUAUU G UACCGACC 1620 AGAAGGCA GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG AAUAGGCG CCCCGUUU 1621 GAAGUGCA GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG AAUAGGCG CCCGGUCU GUCGUUCU 1622 GAAGUGCA GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG AUUGCUGG CGGACCGU GUCGUUCU 1623 UAAACACA GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG AUUGCUGG CGGACCGU GUCGUUCU 1623 UAAACACA GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG AUUCUUGA CAAGUGUU GUCGUUCU 1623 UAAACACA GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG AUUCUUGA CAAGUGUU GUCGUUCU 1623 UAAACACA GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG AUUCUUGA CAAGUGUU GUCGUUCU 1623 UCAAUAAAAA GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG ACCUUUGA AAGAGGCA GUCGUUCU 1623 UCAAUAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA	1253	Accoungu a ucuccucu	1614		10276
ACAAUUCU G UCGUGCUC 1616 GAGCACGA GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG AGCCUAGC GCUAGGCU G UGCUGCCA 1619 UGGCAGCA GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG AAAGGAC CGUCCUUU G UUACGUC 1619 GACGUAAA GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG AAAGGAC CGCCUAUU 1620 AGAAGGCA GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG AAUAGGCG CCCCGUCU 1620 AGAAGGCA GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG AAUAGGCG CCCCGUCU 1621 GAAGUGCA GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG AAUAGCGC CCCCGUCU 1622 GAAGUGCA GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG AUGCUCCG UCAGCAUU 1623 UAAACACA GGAGGAAACUCC CU UCAAGGACAUCGUCCGG ACGUCCGG UCAGCAUU 1624 AUUAAACA GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG ACCUCUU AAGACUGU UCAUUAAA GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG ACCUCUU AAGACUGU UCAUUAAACA GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG ACCACUCUU AAGACUGU UCAUUAAACA GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG ACCACUCUU AAGACUGU UCAUUAAA GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG ACCACUCUU AAGACUUU UCAUUAAA GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG ACCACUCUU AAGACUUU UUCAUUAAA GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG ACCACUCUU AGGUCUU UCAUUAAACAACAC GGAGGAAACUCC CU UCAAGGA	1294	AGCCGCUU G UUUUGCUC	1615	GGAGGAAACUCC	10277
GCUCCUUU G UUVACGUC 1619 GGCGUAAA GGAGGAAACUCC CU UCAAGGACAUCGUCGGG AAAGGACG CGUCCUUU G UUVACGUC 1619 GGCGUAAA GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG AAAAGGACG CGCCCGUCU G UGCCUUCU G UGCGUUCA GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG AAAAGGCG AGACGGGG CGACCGUC CU UCAAGGACAUCGUCCGGG AAAAGGCG AGACGGGG AGACGGGC AGACGGGG AGACGGGG AGACGGGG AGACGGGG AGACGGGG AGACGGGG AGACGGG AGACGGGG AGACGGGG AGACGGGG AGACGGG AGACGGGG AGACGGGC AGACGGGC AGACGGGG AGACGGGG AGACGGGG AGACGGGG AGACGGGG AGACGCGG AGGGGAAACUCC CU UCAAGGGACAUCGUCCGGG AGACGCCU AGGGCCUUU G UGUUCACG AGGGGAAACUCC CU UCAAGGGACAUCGUCCGGG AGACGCCU AGGGCCUUU G UGUUCACC AGGGCAAACCC CU UCAAGGGACAUCGUCCGGG AGCCCCC CU UCAAGGGACAUCGUCCGGG ACCACGUC AGGGGAAACUCC CU UCAAGGACAUCGUCCGGG ACCACGUC AGGGCCUUU G UGUUCACC AGGGCAAACCC CU UCAAGGACAUCGUCCGGG ACCACCUC AGGGCCUUU G UGUUCACC AGGGCAAACCC CU UCAAGGACAUCGUCCGGG ACCACCUC AGGGCCUUU G UGUUCACC AGGGCAAACCC CU UCAAGGACAUCGUCCGGG ACCACCUC CU ACAAGGACAUCGUCCGGG ACCACCUC CU ACAACGCACCCCC CU CCAAGGACCCCGGG ACCACCUC CU ACAACGCACCCCGG ACCACCUC CU ACAACGCACCCCGGG ACCACCCC CU ACAACGCCCCGGG ACACACCC CU ACAACGCCCCGGG ACCACCCCCCCCCC	1344		1616	GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG	10278
CGCCURUU G UNUACGUC 1619 GGUCGGUA GGAGGAACUCC CU UCAAGGACAUCGUCGGG AAAGGACG CGCCURUU G UACCGACC 1619 GGUCGGUA GGAGGAAACUCC CU UCAAGGACAUCGUCGGG AAUAGGCG CCCCGUCU G UGCCUUCU 1620 AGAAGGCA GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG AGACGGGG CGGACCGU G UGCACUUCA 1621 GAAGUGCA GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG AUGCCUGA UCAGCAAU G UCACGACU G UGUUUAAU 1623 UAAACACA GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG ACGUCUU CAAAGACU G UGUUUAAU 1624 AUUAAACA GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG ACACUUUG AAGACUGU G UGUUUAAU 1625 UCCUUAAAA GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG ACACACUC AAGACUUU G UACUAGGA 1626 UCCUUAGUA GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG AAAGACCU AGGUCUUU G UACUAGGA 1626 UCCUAGUA GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG AAAGACCU AGGUCUUU G UACUAGGA 1626 UCCUAGUA GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG AAAGACCU AGGUCUUU G UACUAGGA GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG AAAGACCU AGGUCUUU G UACUAGGA GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG AAAGACCU AGGUCUUU G UACUAGGA AAGACAAACUCC CU UCAAGGACAUCGUCCGGG AAAGACCU AGGUCUUU G UACUAGGA GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG ACCCUCCU AGGUCUU G UGUUCACC GGGGAAACUCC CU UCAAGGACAUCGUCCGGG ACCCUCCU AGGUCCUU G UGUUCACC GGGGGAAACUCC CU UCAAGGACAUCGUCCGGG ACCCUCCU AGGUCCUU G UGUUCACC GGGGGAAACUCC CU UCAAGGACAUCGUCCGGG ACCCUCCU	1390		1617	GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG	10279
CCCCGUCU G UGCCUUCU 1620 AGAGGCA GGAGGAACUCC CU UCAAGGACAUCGUCCGGG AAUAGGCG CCCCGUCU G UGCCUUCU 1621 GAAGGCA GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG ACGGUCCG ACGCUCCG CGGACCGU G UGCACUUCU 1621 GAAGUGCA GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG ACGCUCCG ACGCUCCG ACGCUCCG ACGCUCCG ACGCUCCG ACGCUCCG ACGCUCCG ACGCUCUC CU UCAAGGACAUCGUCCGGG ACGCUCUCG ACGCUCUU G UGUUUAAU 1624 AUUAAACA GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG ACACGUCUU GACGUGU G UGUUAAUGA 1625 AUUGCUAAA GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG ACACACUCU AGGUCUUU G UACUAAGGA 1626 UCCUAAGUA GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG AAAGACCU AGGUCUUU G UACUAGGA 1627 UAUGCCUA GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG AAAGACCU AGGAGCAUCGUCCGGG AAAGACCU CU UCAAGGACAUCGUCCGGG AAAGACCU CU UCAAGGACAUCGUCCGGG AAAGACCU CU UCAAGGACAUCGUCCGGG ACCCUCCU AAAUUGGU G UAGUCACC 1628 GGUGAAACUCC CU UCAAGGACAUCGUCCGGG ACCCUCCU AAAUUGGU G UAGUCACC 1628 GGUGAAACUCC CU UCAAGGACAUCGUCCGGG ACCCUCCU AAAUUGGU G UAUCACC 1628 GGUGAAACUCC CU UCAAGGACAUCGUCCGGG ACCCUCCU AAAUUGGU G UGUUCACC 1628 GGUGAAACUCC CU UCAAGGACAUCGUCCGGG ACCCUCCU	1425		1618	GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG	10280
CCCCGUCU G UGCCUUCU 1621 AGAAGGCA GGAGGAACUCC CU UCAAGGACAUCGUCGGG AGACGGGG CGGACCGU G UGCACUUC 1621 GAAGUGCA GGAGGAAACUCC CU UCAAGGACAUCGUCGGG AUUGCUGA UCAGCAAU G UCAACGAC CAAAGACU G UGUUUAAU 1623 UAAACACA GGAGGAAACUCC CU UCAAGGACAUCGUCGGG AUUGCUGA AAGACUGU G UGUUUAAU 1624 AUUAAACA GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG ACCUUUG AAGACUGU G UUUAAUGA 1625 UCCUUAAA GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG ACACGUCU AAGGUCUUU G UACUAGGA 1626 UCCUAGUA GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG AAAGACCU AGGUCUUU G UACUAGGA AAGUCUUU G UACUAGGA AAGUCUUU G UACUAGGA AAAUUGGU G UAGGCAUA AAAUUGGU G UAGGCAUA AAAUUGGU G UAGGCAUA AAAUUGGU G UAGGCAUA AAAUUGGU C UACAAGGACAUCGUCCGGG ACCAAUUU	1508		1619	GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG	10281
CGGACCGU G UGCACUUC 1621 GAAGUGCA GGAGGAACUCC CU UCAAGGACAUCGUCCGGG AUUGCUGA UCAGCAAU G UCAACGAC 1622 GUCGUUGA GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG AUUGCUGA CAAAGACUGU G UGUUUAAU 1623 UAAACACA GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG ACGUCUUUG AAGACUGU G UGUUUAAU 1624 AUUAAACA GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG ACAGUCUU GACUGUGU G UUUAAUGA 1625 UCCUAGUA GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG ACACAGUC AGGUCUUU G UACUAGGA 1626 UCCUAGUA GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG AAAGACCU AGGUCUUU G UACUAGGA AGGUCUUU G UACUAGGA 1627 UAUGCCUA GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG ACCCUCCU AGGAGGCU G UAGGCAUA 1627 UAUGCCUA GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG ACCCUCCU AAAUUGGU G UAGUCACC 1628 GGUGAACUCC CU UCAAGGACAUCGUCCGGG ACCAAUUU	1557	g neccun	1620	GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG	10282
UCAGCAAU G UCAACGAC 1623 GUCGUUGA GGAGGAAACUCC CU UCAAGGACAUCGUCGGG AUVGCUGA CAAAGACU G UGUGUUUAAU 1623 UAAACACA GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG ACUCUUUG AAGACUGU G UGUUUAAU 1624 AUUAAACA GGAGAAACUCC CU UCAAGGACAUCGUCCGGG ACAGUCU AGGUCUUU G UUUAAUGA 1626 UCCUAGUA GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG ACACAGUC AGGUCUUU G UACUAGGA 1627 UAUGCCUA GGAGGAAACUCC CU UCAAGGACAUCGUCGGG AAAGACCU AAAUUGGU G UAGGCAUA 1627 UAUGCCUA GGAGGAAACUCC CU UCAAGGACAUCGUCGGG ACCCUCCU	1581		1621	GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG	10283
CAAAGACU G UGUGUUNA 1623 UAAACACA GGAGGAAACUCC CU UCAAGGACAUCGUCGGG ACAGUCUUG AAGACUGU G UGUUNAAU 1624 AUUNAAACA GGAGGAAACUCC CU UCAAGGACAUCGUCGGG ACACAGUC AGGUCUUU G UUUNAAUGA 1625 UCCUAGUA GGAGGAAACUCC CU UCAAGGACAUCGUCGGG ACACAGUC AGGUCUUU G UACUAGGA 1626 UCCUAGUA GGAGGAAACUCC CU UCAAGGACAUCGUCGGG AAAGACCU AGGUCUUU G UAGGCAUA 1627 UAUGCCUA GGAGGAAACUCC CU UCAAGGACAUCGUCGGG AGCCUCCU AAAUUGGU G UAGUCACC 1628 GGUGAACA GGAGGAAACUCC CU UCAAGGACAUCGUCGGG ACCUCCU	1684		1622	GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG	10284
AAGACUGU G UGUUUAAU 1624 AUUAAACA GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG ACAGUCUU GAACUGUUC GU UUUAAUGA 1625 UCCUAGUA GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG ACACAGUC AGGUCUUU G UACUAGGA 1626 UCCUAGUA GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG AAAGACCU AGGAGGCU G UAGGCAUA 1627 UAUGCCUA GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG AAAGACCU AAAUUGGU G UGUUCACC 1628 GGUGAACA GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG ACCAAUUU	1719		1623	GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG	10285
AGGUCUUU G UACUAGGA 1625 UCCUAGUA GGAGGAAACUCC CU UCAAGGACAUCGUCGGG ACACAGUC AGGUCUUU G UACUAGGA 1627 UCCUAGUA GGAGGAAACUCC CU UCAAGGACAUCGUCGGG AAAGACCU AGGAGGCU G UAGGCAUA 1627 UAUGCCUA GGAGGAAACUCC CU UCAAGGACAUCGUCGGG AGCCUCCU AAAUUGGU G UGUUCACC 1628 GGUGAACA GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG ACCAAUUU	1721		1624	GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG	10286
AGGUCUUU G UACUAGGA 1626 UCCUAGUA GGAGGAAACUCC CU UCAAGGACAUCGUCGGG AAAGACCU AGGAGGCU G UAGGCAUA 1627 UAUGCCUA GGAGGAAACUCC CU UCAAGGACAUCGUCGGG AGCCUCCU AAAUUGGU G UGUUCACC 1628 GGUGAACA GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG ACCAAUUU	1723	1 1	1625	GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG	10287
AGGAGGCU G UAGGCAUA 1627 UAUGCCUA GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG AGCCUCCU AAAUUGGU G UGUUCACC 1628 GGUGAACA GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG ACCAAUUU	1772		1626	GGAGGAAACUCC CU UCAAGGACAUCGUCGGG	10288
AAAUUGGU G UGUUCACC 1628 GGUGAACA GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG ACCAAUUU	1785		1627	GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG	10289
	1801		1628	GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG	10290

1803	AUUGGUGU G UUCACCAG	1629	CUGGUGAA GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG ACACCAAU	10291
1850	CAUCUCAU G UUCAUGUC	1630	GACAUGAA GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG AUGAGAUG	10292
1856	AUGUUCAU G UCCUACUG	1631	GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG	10293
1864	GUCCUACU G UUCAAGCC	1632	GGCUUGAA GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG AGUAGGAC	10294
1881	UCCAAGCU G UGCCUUGG	1633	CCAAGGCA GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG AGCUUGGA	10295
1939	GAGCUUCU G UGGAGUUA	1634	UAACUCCA GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG AGAAGCUC	10296
2013	ncnecnch e nynceeee	1635	CCCCGAUA GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG AGAGCAGA	10297
2045	GGAACAUU G UUCACCUC	1636	GAGGUGAA GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG AAUGUUCC	10298
2082	ecnymen e nemeeee	1637	CCCCAACA GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG AGAAUAGC	10299
2084	UAUUCUGU G UUGGGGUG	1638	CACCCCAA GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG ACAGAAUA	10300
2167	UCAGCUAU G UCAACGUU	1639	AACGUUGA GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG AUAGCUGA	10301
2205	CAACUAUU G UGGUUUCA	1640	UGANACCA GGAGGNAACUCC CU UCAAGGACAUCGUCCGGG AAUAGUUG	10302
2222	CAUDUCCU G UCUDACUU	1641	AAGUAAGA GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG AGGAAAUG	10303
2245	GAGAAACU G UUCUUGAA	1642	UUCAAGAA GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG AGUUUCUC	10304
2262	UAUUUGGU G UCUUUUGG	1643	CCAAAAAGA GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG ACCAAAUA	10305
2274	UNGGAGU G UGGAUUCG	1644	CGAAUCCA GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG ACUCCAAA	10306
2344	AAACUACU G UUGUUAGA	1645	UCUAACAA GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG AGUAGUUU	10307
2347	CUACUGUU G UUAGACGA	1646	UCGUCUAA GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG AACAGUAG	10308
2450	AUCUCAAU G UUAGUAUU	1647	AAUACUAA GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG AUUGAGAU	10309
2573	AGGACAUU G UUGAUAGA	1648	UCUAUCAA GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG AAUGUCCU	10310
2583	UGAUAGAU G UAAGCAAU	1649	AUUGCUUA GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG AUCUAUCA	10311
2594	AGCAAUUU G UGGGGCCC	1650	GGGCCCCA GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG AAAUUGCU	10312
2663	AUCCCAAU G UUACUAAA	1651	UUUAGUAA GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG AUUGGGAU	10313
2717	CAGAGUAU G UAGUUAAU	1652	AUDAACUA GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG AUACUCUG	10314
2901	AUCUTUCO G UCCCCAAU	1653	AUUGGGGA GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG AGAAAGAU	10315
3071	GGGGGACU G UUGGGGUG	1654	CACCCCAA GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG AGUCCCCC	10316
3111	UCACAACU G UGCCAGCA	1655	UGCUGGCA GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG AGUUGUGA	10317
40	AUCCCAGA G UCAGGGCC	1656	GGCCCUGA GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG UCUGGGAU	10318
46	GAGUCAGG G CCCUGUAC	1657	GUACAGGG GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG CCUGACUC	10319
65		1658	UGGAGCCA GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG CAGCAGGA	10320
68		1659	AACUGGAG GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG CACCAGCA	10321
74	ro l	1660	GGAGGAAACUCC	10322
85	დ	1991	AGGGCUCA GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG UGUUCCUG	10323
89		1662	GAGCAGGG GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG UCACUGUU	10324
120		1663	GGAGGAAACUCC CU	10325
196	O	1664	CUGUAACA GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG GAGCAGGG	10326
205	UGUUACAG G CGGGGUUU	1665	AAACCCCG GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG CUGUAACA	10327

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OTZ	000000000000000000000000000000000000000	1666	GGAGGAACUCC CU UCAAGGACAUCGUCCGGG	10328
248	ACCACAGA G UCUAGACU	1667	GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG	10329
258	CUAGACUC G UGGUGGAC	1668		10330
261	gacuceus e useacuuc	1669	GAAGUCCA GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG CACGAGUC	10331
295	GAACACCC G UGUGUCUU	1670	AAGACACA GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG GGGUGUUC	10332
305	GUGUCUNG G CCAAAAUU	1671	AAUUUUGG GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG CAAGACAC	10333
318	AAUUCGCA G UCCCAAAU	1672	AUUUGGGA GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG UGCGAAUU	10334
332	AAUCUCCA G UCACUCAC	1673	GUGAGUGA GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG UGGAGAUU	10335
368	noencene e novaceen	1674	AGCGAUAA GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG CAGGACAA	10336
390	nenance e cennanya	1675	AUAAAACG GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG CGCAGACA	10337
392	UCUGCGGC G UUUNAUCA	1676	UGAUAAAA GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG GCCGCAGA	10338
442	വഠസദ്ധാദ ദ സവസവ	1677	CAGAAGAA GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG CAACAAGA	10339
461	CUAUCAAG G UAUGUUGC	1678	GCAACAUA GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG CUUGAUAG	10340
472	ueuvecco e uvuevoco	6491	AGGACAAA GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG GGGCAACA	10341
206	AACAACCA G CACCGGAC	1680	GUCCGGUG GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG UGGUUGUU	10342
625	CAUCUUGG G CUUUCGCA	1681	UGCGAAAG GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG CCAAGAUG	10343
648	CUAUGGGA G UGGGCCUC	1682	GAGGCCCA GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG UCCCAUAG	10344
652	GGGAGUGG G CCUCAGUC	1683	GACUGAGG GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG CCACUCCC	10345
658	യ നടങ്ങ	1684	GAAACGGA GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG UGAGGCCC	10346
662	ט	1685	AAGAGAAA GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG GGACUGAG	10347
672		1686	AAACUGAG GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG CAAGAGAA	10348
677	g wwac	1687	CUAGUAAA GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG UGAGCCAA	10349
685	G UGCCA	1688	AAAUGGCA GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG UAGUAAAC	10350
669	uvuenuca e ueeuuceu	1689	ACGAACCA GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG UGAACAAA	10351
702	GUUCAGUG G UUCGUAGG	1690	CCUACGAA GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG CACUGAAC	10352
206	G UAGGG	1691	AAGCCCUA GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG GAACCACU	10353
711	s coooc	1692	GGGGAAAG GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG CCUACGAA	10354
729	g counc	1693	ACUGAAAG GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG CAGACAGU	10355
736	G UUAUA	1694	CCAUAUAA GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG UGAAAGCC	10356
753	ט	1695	CCCCAAAA GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG CACAUCAU	10357
762	ט	1696	AGACUUGG GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG CCCCAAAA	10358
767	g ucugu	1697	UGUACAGA GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG UUGGCCCC	10359
785	ט	1698	UAAAGGGA GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG UCAAGAUG	10360
826	GUCUUUGG G UAUACAUU	1699	AAUGUAUA GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG CCAAAGAC	10361
868	ტ	1700	UGCCCCAA GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG UCCCAAUU	10362
904	g cacau	1701	GGAGGAAACUCC	10363
971	GUAAACAG G CCUAUUGA	1702	UCAAUAGG GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG CUGUUUAC	10364

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1419 UNICACIONA G FOUNDEDAY 1741 AURICHARDA GRAGIANACTICC CU UCIARGRACINCEGGGG CIGARAGGIC 1041 1743 UNICACIONA GARGIANACTICC CU UCIARGRACINCEGGGG CICARAGGIC 1041 1743 UNICACIONA GARGIANACTICC CU UCIARGRACINCEGGGG CICARAGGIC 1044 1743 UNICACIONA GARGIANACTICC CU UCIARGRACINCEGGGG CICARAGGIC 1044 1744 UNICACIONA GARGIANACTICC CU UCIARGRACINCEGGGG CICCACCCC 1044 1745 UNICACCCCA GARGIANACTICC CU UCIARGRACINCEGGGG CICCACCCC 1044 1745 UNICACCCCA GARGIANACTICC CU UCIARGRACINCEGGGG CICCACCCC 1044 1745 UNICACCCCA GARGIANACTICC CU UCIARGRACINCEGGGG CICCACCCC 1044 1745 UNICACCCA GARGIANACTICC CU UCIARGRACINCEGGGG CICCACCCC 1044 1745 UNICACCACCA 1745 UNICACCACACCA 1745 UNICACACACACACACACACACACACACACACACACACACA	1622	AGACCACC G UGAACGCC	1740	GGCGUUCA GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG GGUGGUCU	10402
ACCURDADO GO GUARGUEC 1742 UGACRANDO GORGARAACUCC CU UCANGGACHOUGCGGGG CUCANGGU ACCUURANG GUAGAGAA 1743 GOAGAGAAACUCC CU UCANGGACHOUGCGGGG CUCANGGU AUCHORANG GUAGAGAA 1744 UCCUCCCA GAGGAAACUCC CU UCANGGACAUCGUCCGGG CUCANGGU UGGGGGAA 1745 UCCUCCCA GAGGAAACUCC CU UCANGGACAUCGUCCGGG UCCUCCCA GAGGAGAAG UUAACUTAA GGAGGAAACUCC CU UCANGGACAUCGUCCGGG UCUCACCCA GAGGAGAAG UUAACUTAA GGAGGAAACUCC UCAAGAGACAUCGUCCGGG UCUCACCCA GAGUAAAG UUAACUTAA GGAGGAAACUCC UCAAGAGACAUCGUCCGGG CUCUCACCA GAGUAAAA UUCACACAA GAGGAAAACUCCCCA GAGUAAAA UUAACUTAA GACCUUTAA GAGGAAAACUCCCA UCAAGGAAACUCCCCA GAUTAAAU 1751 AUUTUANG GAGGAGAACUCCCA UCAAGGAAACUCCCCA GUAGAACACA GAGGAAACACCA GUAGAACACA GAGGAAAACACCA GUAGAACACA GAGGAAAACACCA GUAGAACACA GAGGAAAACACCA GUAGAACACA GAGGAAAACACCA UCAAGGACACACACACAACAACAACAACAACAACAACAACA	1649	UGCCCAAG G UCUUGCAU	1741	GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG	10403
ACCUURAGE G CAUACUUC 1743 CHANGTRUE GRAGGARACUCC CU UCCAAGGACUCGUGGG UCAUUDAA U UGGAGGAG	1679	GACUUUCA G CAAUGUCA	1742	GGAGGAAACUCC	10404
UNIDADUSA 1744 UCCUCCAS, GRAGGARACCC UCCARGOCCAS GUECUCGG UNIDADUSA 1745 UCCCCCAR, GRAGGARACCC UCCARGAGACAUCGUCGGG UCCACCCCA GAGGARGAS 1745 UCCCCCAR, GRAGGARACCC UCCARGAGACAUCGUCGGG UCCCCCCC GAGGARGAS 1747 UCCCCCAR, GRAGGARACCC UCCARGAGACAUCGUCGGG UCCCCCCC GAGGARGAS 1748 UCCACACAG UCCACACAG UCCACACAG GAGGARGAS 1749 UCCACACAG UCCACACAG UCCACACAG ACIDAGAS 1750 UCCACAGA GAGGARACCC UCCAGGACAUCCCCGGG UCCAGGAGA GACUCASA 1751 UCCACAGAG GAGGARACCC UCCAGGAGACCCGGG UCCAGGAGA GACUCASA 1752 UCCACAGAG GAGGARACCC UCCAGGAGACACCCGGG UCCAGGAGA GAGCUCASA CUGUCASA 1753 UCUGGAGAACCCC UCCAGGAGACACCCGGG UCCACAGGG GUGUCASA CUGUCASA 1754 UCUCAGAAACCC UCCAGGACACCGGG UCCACAGGG GCUCCASA CUGUCASA 1755 UCUCAGAAACCC UCCAGGACACCGGG UCCACAGAGA <td>1703</td> <td>ACCUUGAG G CAUACUUC</td> <td>1743</td> <td>GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG</td> <td>10405</td>	1703	ACCUUGAG G CAUACUUC	1743	GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG	10405
UBGGRAGA G UNGAGGAM 1715 UDCCCCCAA GARGGAMACUCC CU UCAAGGACUGGGGGG CUCCCCAA GGGGAGGAG G UNGAGGAM 1716 UNACCUDA GAGGGAMACUCC CU UCAAGGACAUGGUCGGGG CULUACCC GGGUAAAG G ULAAAGA T141 ACCUULAA ACCUULAA ACCUULAA GGUUAAAG G ULAAAGA T174 ACCUULAA ACCUULAA ACCUULAA GGUUAAAU 1750 ACCUULAA ACCUULAA ACCUULAA ACCUULAA GGUUAAAU 1751 UAACACA GAAGGAAACUCC CU UCAAGGACAUCGUCGGG CUULAAGACAUCGUCGGG AUNAAUUG G UCUCCAAG GAAGGAAACUCC CU UCAAGGACAUCGUCGGG CUCUTAGG GUUCAAG G CUCCCAAG GAAGGAAACUCC CU UCAAGGACAUCGUCGGG CUCAAGGACAUCGUCGGG GUUCAAG G CUCCCAAG GAAGGAAACUCC CU UCAAGGACAUCGUCGGG CUCCAAG GUUCAAG G CUCCCAAG GAAGGAAACUCC CU UCAAGGACAUCGUCGGG CUCCAAGGACAUCGUCGGG CUCUCAAG G UCCCAAG GAAGGAAACUCC CU UCAAGGACAUCGUCGGG CUCCAAGAGACAUCGUCGGG CUCUCGAG TUCCACCAAG <	1732	UUUAAUGA G UGGGAGGA	1744	GGAGGAAACUCC	10406
646AGRAMA G UUAGGUUM 1746 UNACCUDA GGAGGAAACUCC CU UCAAGGACAUCGUCGGG CUCCUCCAG GAGGADAGA G UUAAAGAU 1747 ACCUUNA GAGGAAACUCC CU UCAAGGACAUCGUCGGG CULAGGACAUCGUCGGG GAUGUAAAG GUUUAAAGA GAGGAAACUCC CU UCAAGGACAUCGUCGGG CULAGGACAUCGUCGGG ACUUCAGA AAUCUACA GAGGAAACUCC CU UCAAGGACAUCGUCGGG CUCUTAGA GGUUCACA G CUCUACA GAGGAAACUCC CU UCAAGGACAUCGUCGGG CUCUTAGA GUUCACCA G ACCAUGC CU UCAAGGACAUCGUCGGG CUCUTAGA GUUCACA G ACCAUGA GAGGAAACUCC CU UCAAGGACAUCGUCGGG CUCUTAGA GUUCACA G ACCAUGA GAGGAAACUCC CU UCAAGGACAUCGUCGGG CUCUTAGAG GUUCACA G CUCUCAAG GAGGAAACUCC CU UCAAGGACAUCGUCGGG CUCUTAGAG GUUUCACA G CUCUCAAG GAGGAAACUCC CU UCAAGGACAUCGUCGGG CUCUTAGAG GUUUCACA G CUUCACAGAG GAGGAAACUCC CU UCAAGGACAUCGUCGGG CUCCUTAGAG GUUUCACA G CUUCACAGAG GAGGAAACUCC CU UCAAGGACAUCGUCGGG CUCCUTAGAG GUUCACAG<	1741	UGGGAGGA G UUGGGGGA	1745	GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG	10407
ACCUTUDADA GO UNDADAGO 1747 ACCUTUDADA GROBADACICC CU LOAGGACANCGOCCOGGO CUDAGGACANCGOCCOGGO AGUIDAAMO 1748 GCUDAAGO GAGGAAACUCC CU LOAGGACANCGOCCOGGO CUCUCAGO AGUCHAGO 1749 GCUDAGO GAGGAAACUCC CU LOAGGACANCGUCCOGGO CUCUCAGO GGCUGUAGO 1751 UGAACACA GAGGAAACUCC CU LOAGGACANCGUCCOGGO CUALOAGO AUCHACAGO GCACCAUGC 1752 GCAGAGO GAGGAAACUCC CU LOAGGACANCGUCCOGGO CUALOAGACA CUGUCAAA G CUCCAUGC 1752 GCAGAGAAACUCC CU CAAGAGACACCOCCOCGO CUALOAGACANCGUCCOGGO CUGUACAA G CUCCANGO 1752 GCAGAGAGAGAACUCC CU CAAGAGACAACCOCCOCGO CUCAAGACAACAACAACAACACAACAACAACAACAACAACAA	1754	GGGAGGAG G UUAGGUUA	1746	GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG	10408
ACUIDAGAS G UCUUUGUA 1748 UNCAAAAN GAAGAAACUCC CU UCAAGGACAUCGUCCGGG CUUUAACC G COCUUAAAU 1749 ACUUACAG GAAGAAACUCC CU UCAAGGACAUCGUCCGGG CUACAGU GACUCAAAU 1751 UGAACACA GAAGAAACUCC CU UCAAGGACAUCGUCCGGG CUACAGU GAUCAAAU 1751 UGAACACA GAAGGAAACUCC CU UCAAGGACAUCGUCCGGG CUACAGC CUACAGC CUACAGC CUACAGC CUACAGCACAUCGUCCGGG CUACAGC CUACAGCACAUCGUCCGGG CUACAGC CUACAGC CUACAGCACAUCGUCCGGG CUACAGC CUACAGCACACACGC CUACAGCACACACGC CUACAGCACACACGC CUACAGCACACACGC CUACAGCACACACGC CUACAGCACACACACACACACACACACACACACACACACA	1759	GAGGUUAG G UUAAAGGU	1747	GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG	10409
ACURGAGA GCCURADA GECURADA GECURADA GEGUGUAG 1750 ARUTUNG GERABAARUC CU NAAGBACAUCGUCCGGG CURARGA AUDARUG 1750 UGAACAAC GERAGABAACUC CU UCAAGGACAUCGUCCGGG CARUTUNA GEUCUCAG 1751 GERAGGABAACUC CU UCAAGGACAUCGUCCGGG CARUTUNA GUUCACCA 1752 GUUGGAGG GAAGGACA GAAGGACA GCUCCAAG 1753 CUUGGAGG GAAGGACA GAAGGACA GCUCCAAG G CUCCAAGG GAAGGACA GAAGGACAC GAAGGACA GAAGGACA GCUCCAGG G TASA GAGGAAAACUC CU UCAAGGACAUCGUCGGG CAAAGGACA GCUCCAGG G TASA AGAGGAAAACUC CU UCAAGGACAUCGUCGGG CCCCAAGG GCUCUGG G UUCUCGGG GAAGGAAAACUC CU UCAAGGACAUCGGGG CCCCAAGG AUUGUCGG G UUCUCGGG GAAGGAAAACUC CU UCAAGGACAUCGGGG CCCCAAGG AUUGUGGG G CUUCAGGG GAAGGAAAACUC CU UCAAGGACAUCGGGG CCCCAAGGAAACUC AUUGUGGG G CUUCAGG G TAGGAAAA	1766	GGUUAAAG G UCUUUGUA	1748	GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG	10410
GECUGIUGA G CAUMANUU 1756 AAUTUMUG GEAGGAAACCICC CU UCAAGGACAUCGUCCGGG CUACAGCC CU AAUAGGACAUCGUCCGGG CUACAGCC CU AAUAGGACAUCGUCCGGG UGGUCGAACCC GUUACAGCA CUCCCAA G CAUCUGAG GAAGGAAACCICC CU UCAAGGACAUCGUCCGGG UGGUCAACC CU CUCAAGGACAUCGUCCGGG UGGUCAACC CU CUCAAGGACAUCGUCCGGG UGGUCAACC CU CUCAAGGACAUCGUCCGGG UGGUCAACC CU CUCAAGGACAUCGUCCGGG UGGAGGAC CUCCCAAG GCCUCCAAG GCCUCCAAG GAAGGAAACCICC CU UCAAGGACAUCGUCCGGG UGGAGGAC CUCCCAAG GCCUCCAAG GAAGGAAACCICC CU UCAAGGACAUCGUCCGGG UCAAGGCA CUCAGGAG GCUUGAGGG CUUGAAGGA CUUGAGGA CUCCCAAAG GAAGGAAACCIC CU UCAAGGACAUCGUCCGGG CCCAAAGC CUUGAGGG CUUACAGG CUUCAAGGACAUCGUCCGGG CCCCAAGC AUUGAGGC CUUCAAGGACAUCGUCCGGG CCCCAAGC CACCGAAG GAAGGAAACCIC CU UCAAGGACAUCGUCCGGG CCCCAAGC CACCGAAG GAAGGAAACCIC CU UCAAGGACAUCGUCCGGG CCCCAAGC CACCGAAG GAAGGAAACCIC CU UCAAGGACAUCGUCCGGG CCCCAAGC AUUGAGGA CUUCAGGA CUUCAAGGACAUCGUCCGGG CCCCAAGC CACCGAAG GAAGGAAACCIC CU UCAAGGACAUCGUCCGGG CCCCAAGC CACCGAAG GAAGGAAACCIC CU UCAAGGACAUCGUCCGGG CCCCAAGC CACCACAG GAAGGAAACCIC CU UCAAGGACAUCGUCCGGG CCCCCAAGC CACCACAG CACCACAG GAAGGAAACCIC CU UCAAGGACAUCGUCCGGG CCCCAAGC CACCACAG GAAGGAAACCIC CU UCAAGGACAUCGUCCGGG CCCCAAGC CACCACAG GAAGGAAACCIC CU UCAAGGACAUCGUCCGGG CCCCAAGC CACCACAG GAAGGAAACCIC CU UCAAGGACAUCGUCCGGG CCCCCAAG CACCACAG GAAGGAAACCIC CU UCAAGGACAUCGUCCGGG CCCCAAGC CACCACAG GAAGGAAACCIC CU UCAAGGACAUCGUCCGGG CCCCCAACAC CACCACAG GAAGGAAACCIC CU UCAAGGACAUCGUCCGGG CCCCAACAC CACCACAG GAAGAACCAC CU CCAACACA GAAGAAACCCC CU UCAAGGACACACCCCCGGG CCCCAACAC CCCCCAACAC CACCACAG GAAGAAACCC CU UCAAGGACACACGCCCCCCAACAC CACCACAG GAAGAACCC CU UCAAGGACACACCCCCCCAACAC CACCACACA GAAGAACCCC CU CAACAACA CACCACACA GAAGAACCCC CU CAACAACA GAAGAACCCCCCCAACA CACCACACA GAAGAACCCC CU CAACAACA CACCACACA GAAGAACCCCCCCCCAACAC CACCACACA GAAGAACCCC CU CAACAACA CACCACACA GAAGAACCCCCCCCAACAC CACCACACAC CACC	1782	ACUAGGAG G CUGUAGGC	1749		10411
AUMAANUG G UGUGUCA 1751 UGAACAAC GAAGGAAACUCC CU UCAAGGACUCCGGG GAGGAAUUUAU GUUUCACA G CACCANGC 1752 GCAUGGAGG GAGGGAAACUCC CU UCAAGGACUCCGGGG UGAACAAC CUGUUCAA G CUCCUAGG 1754 AGGCACAGG GCUUCCAA G CUCCUAGG 1754 AGGCACAG GCCUCCAA G CUCCUAGG 1754 AGGCACAG GCCUCCAA G CUCCUCCAG 1754 AGGCACAG GCCUCCAA G CUUCAGGA 1754 AGGCACAG GCCUCCAAG GAAGCAC GAAGGAAACUCC CUUCAGGA 1756 CCACAAGG CUUCAGGA 1756 CCACAAGGACACCCGGGG AUUGACCC UUCAAGGACAUCCGGG AUUGAGGG CAUGAGGA AUUGAGGG CAUGAGGA AUUGAGGG CAUGAGGA AUUGAGGG CAUGAGGA AUUGAGGG CAUGAGGA AUUGAGGG CAUCAGGG AUUGAGGG CACAGAAG GCUUAGG CACAGAAG GCUUAGGG CACAGAAG GCUUAGGG CACAGAAG GCCCAAAG GAGGGAAACUCC GCCCCAAG GAGGAGAACCC </td <td>1789</td> <td>GGCUGUAG G CAUAAAUU</td> <td>1750</td> <td>CU UCAAGGACAUCGUCCGGG</td> <td>10412</td>	1789	GGCUGUAG G CAUAAAUU	1750	CU UCAAGGACAUCGUCCGGG	10412
GUUDUCACA G CACCAUGG 1753 GOADGRUG GEAGGAAACUCC CU UCAAGGACAUCGUCGGG UGGAGAACC CUGUUCAA G COUCCAAG 1753 CUUGGAGG GEAGGAAACUCC CU UCAAGGACAUCGUCGGG UUGGAGG CUUGGGUG G CUUUGGGG 1754 AGGCACAG GEAGGAAACUCC CU UCAAGGACAUCGUCGGG CCAAGGC UGCUUCAA G CUUUGGGG 1756 CCCCAAAG GEAGGAAACUCC CU UCAAGGACAUCGUCGGG CCAAAGC CUUGGGUG G CUUUGGG 1757 UGUCCAUG GEAGGAAACUCC CU UCAAGGACAUCGUCGGG CCAAAGC AUUGGACC GUALAAGAA 1758 UGUCCAAAG GCUUUGGG CUULAGGG CCCCAAAG GCUUUGGG CUULAGGA CUCCAAAG AUUGGACC UALAGGACAUCGUCCGGG CCCAAAGC AUUGGACC UALAGGACAUCGUCGGG CCCAAAGC AUUGGAGGG CCUUAAGG GGAGGAAACUCC CU CAAGGACAUCGGCGGG AUUGGAGG CCUUAAGG GGAGGAAACUCC CU CAAGGACAUCGGG CCCCAAAG AUCCGGGG CCUUAAGG GGAGGAAACUCC CU CAAGGACAUCGGGG CCCCAAAG GCCUUAGA UCCCGGAGG GCACAGGAGACCC CU CAAGGACAUCGGGG CCCCAAAG GCCUUAGA UCCCGGAGG GCACAGGAGGACCC CU CAAGGACAUCGCCGGG CCCCAAAG	1799	AUAAAUUG G UGUGUUCA	1751	GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG	10413
CUGUNCAA G CUUCCAAG 1753 CUUGGAAG GAAGGAAACUCC CU UCAAGGACAUCGUCGGG UUGAACAG GCCUCCAA G CUGUCCAA G CUGUCGAAG GAAGGAAACUCC CU UCAAGGACAUCGUCGGG CCCAAGGCA CCAAAGCCA GGAGGAAACUCC CU UCAAGGACAUCGUCGGG CCCAAGGCA CUUGGGUG G UGGCUUGG 1756 CCCCAAAG GGAGGAAACUCC CU UCAAGGACAUCGUCGGG CCCAAGGCA CUUGGGUG G CUUGAGCA 1757 CCCCAAAG GGAGGAAACUCC CU UCAAGGACAUCGUCGGG CCCCAAGG GCUUGGGG G CUUCAGG 1758 CCCCAAAG GGAGGAAACUCC CU UCAAGGACAUCGUCGGG CCCCAAGG AUUGACCC G UAUAAGGA 1758 CCCCAAAG GGAGGAAACUCC CU UCAAGGACAUCGUCGGG CCCCCAAG AUUGACCC G UAUAAGGA 1759 CCCCAAAG GGAGGAAACUCC CU UCAAGGACAUCGUCGGG CCCCCAAGA AUUGACCC G UAUAAGGA 1761 CCUUAAGG GGAGGAAACUCC CU UCAAGGACAUCGUCGGG CCCCCCAAGA AUUGACCC G UAUAAGGA 1761 CCUCUAAGG GGAGGAAACUCC CU UCAAGGACAUCGUCGGG CCCCCAAGA AUCGGGGG G CCUUAGAG 1761 CCUCUAAGG GGAGGAGAACUCC CU UCAAGGACAUCGUCGGG CCCCCCAAGACACACACACACACACACACACACAC	1811	GUUCACCA G CACCAUGC	1752	GGAGGAAACUCC	10414
GCCUCCAA G CUBGGCCU 1754 AGGCACAG GGAGGAACUCC CU UCAAGGACAUCGGUCCGG UUGGAGGCA CUUGGUUGG G UGGCUUUGG 1755 CCACAAACCA GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG CACAAGCA CUUGGGUG G CUUUGGGG C UTAAGGACAUCGUCCGGG CCCAAAGC CCCCAAAGCCA GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG CCCAAAGC AUUUGGG G CUUUGGG G TAF6 UCUUUMAA GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG CCCAAAGC AUUUGGA G CUUCCGGA 1759 CACAGAAG GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG CCCAAAGC AUUUGGA G CUUCCGGA 1760 CACAGAAG GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG CCCAAAGC AUUUGGA G CUUCCGGA 1761 CUCUAAGG GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG UCCAAAGU AUCGUUGG G CACUCAGA 1762 CCCGAGAAACUCC CU UCAAGGACAUCGUCCGGG UCCAAAGU ACCAUACAG UCCGAAGA GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG UCAACAG GCCUUAAGA G UCCACAGA ACCAUACAG GCCUUAAGA GAGGAAACUCC CU UCAAGGACAUCGUCCGGG UUCACAGA ACCAUCAGA ACCAUCAGA 1763 CCUGAGAAACUCC CU UCAAGGACAUCGUCCGGG UUCAAGG ACCAUCAGA GCACUCAGA GAGAGAAACUCC CU UCAAGGACAUCGUCCGGG UUCACAGA ACCAUCAGA GCACUCAGA GAGAGAAACUCC CU UCAAGGACAUCGUCCGGG UUCAAGGACAUCGUCCGGG UUCAAGGACAUCGUCCGGG UUCAAGGACAUCGUCCGGG UUCAAGGACAUCGUCCGGG UUCAAGGACAUCGUCCGGG UUCAAGGACAUCGUCCGGG UUCAAGGACAUCGUCCGGG UUCAAGGACAUCGGCGCGCGCAACAGACACACACAACAACAACAACAACAA	1870	CUGUUCAA G CCUCCAAG	1753	GGAGGAAACUCC	10415
UGCUUDGG G UGGCUUUG 1755 CAAAGCCA GGAGGAAACUCC CU UCAAGGACAUCGUCGGG CACCAAG CUUUGGGG G CUUGGACA 1756 CCCCAAAG GGAGGAAACUCC CU UCAAGGACAUCGGGG CACCAAG AUUUGACC G UAUAAAGA 1759 UCUUUAUA GGAGGAAACUCC CU UCAAGGACAUCGGGG CCCAAAG AAUUUGACC G UAUAAAGA 1759 CACAAAAG GGAGGAAACUCC CU UCAAGGACAUCGGGG CCCAAAG AAUUUGAGA G UUACUCUC 1760 GAGAGAAA GGAGGAAACUCC CU UCAAGGACAUCGGGG CCCAAAGU AUCUGGGG G UAUAAAGA 1761 CACAAAAG GGAGGAAACUCC CU UCAAGGACAUCGGGG CCCCAAAU AUCGGGGG G CUUAGAG 1760 GAGAGUAA GGAGGAAACUCC CU UCAAGGACAUCGGGG CCCCCGAU ACCAUAAG 1761 CUCUAAGG GGAGGAAACUCC CU UCAAGGACAUCGGGG CCCCCGAU GCCUUAGA G UUACUCA 1762 CCCGAAGA GGAGGAAACUCC CU UCAAGGACAUCGGGG CCCCCGAU GCCUUAGA G UCCCCGA 1763 AUAGCUUG CU UCAAGGACAUCGUCGGG CCCCCCGAU GCAUCAGG G CAACCAG 1764 AUAGCUUG GAGGAAACUCC CU UCAAGGACAUCGCGGG CCCCACAC GCACUCAG G CAACUCA GAGGAGAACUCC CU UCAAGGACAUCGCGGG CCCCACAC UCCAGCACA UCAACCAG UCCAGCAGA GAGGAAACUCC	1878	ල පොලොල	1754	GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG	10416
CUUGGGIGG 1756 CCCCAAAG GAAGGAAACUCC CU CAAGGACAUCGGGG CACCAAAG AUUGAGGG GAUUGGGG CAUUGGGG CACCAAAGC CU CAAGGACAUCGUCGGG CACCAAAGC AUUGACC G UAUGAGGA 1758 UCUUUAUA GAGGAAACUCC CU CAAGGACAUCGUCGGG CACCAAAGC AUUGAGGG G CUUACGC 1760 GAGGGAAACUCC CU CAAGGACAUCGGGG CCCCAAAGC AUCGGGGG G CUUACGG 1761 CACAGAAG GAGGGAAACUCC CU CAAGGACAUCGGGG CCCCAAAU AUCGGGGG G CUUAGG 1762 CACAGAGA GAGGGAAACUCC CU CAAGGACAUCGUCCGGG UCAAGGACAUCGGCG CCCCAAAGC AUCGGGGG G CCUUAGG GAGGGAAACUCC CU CAAGGACAUCGGCG CCCCCAAU CCCCCAAU CCCCCAAU CCCCCAAU CCCCCCAAU CCCCCCAAU CCCCCCCAAU CCCCCAAU CCCCCCAAU CCCCCAAU CCCCCAAU CCCCCCAAU CCCCCAAU CCCCCCAAU CCCCCAAU CCCCCAAU CCCCCAAU CCCCCAAU CCCCCAAU CCCCCCAAU CCCCCCAAU CCCCCCAAU CCCCCCCCC CCCCCCCCC CCCCCCCCCCC CCCCCCCCCC	1890	ල ගලයගා	1755	GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG	10417
GCUUTOGGG G CAUGGACA 1757 UGUCCANG GAGGAAACUCC CU UCAAGGACANCGUCCGGG CCCAAAGC ANUTARACC G UALDAAGA 1758 UCUUTAUA GAGGAAACUCC CU UCAAGGACANCGUCCGGG GGGUCAAU AAUTUGGA G CULCUGGG 1759 CACAGAAG GAGGAAACUCC CU UCAAGGACAUCGUCCGGG UCCACAGA UCUGGGGG G CCUUTAGAG GAGGGAAACUCC CU UCAAGGACAUCGUCGGG UCCACAGA ACCAUTACG G CCUUTAGAG GAGGGAAACUCC ACCAUTACG CCUUTAGAG GAGGGAAACUCC GCCUUTAGA 1761 UCCGGAGA GCCUUTAGA UCCCCGAU ACCAUTACG CCUUTAGGA GAGGAAACUCC ACCAUTACG CACACACCCG ACCAUTACG CACACACACC GCACUCAG CTUCAGAGA GCACUCAG CACACACACC GCACUCAG CACACACACC GCACUCAG CACACACACC GCACUCAG CACACACACC GCACUCAG CACACACACC GCACUCAG CACACACACC GCACACACC CACACACC GCACACACC CACACACC GCACACACC UCACACACC GCACACACC UCACACACCC GCACACACC UCACACACC </td <td>1893</td> <td>២</td> <td>1756</td> <td>GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG</td> <td>10418</td>	1893	២	1756	GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG	10418
AUUGANCCC G NAURAAGA LUCUUNUANA GAGGGAAACUCC CU NCAAGGACAUCGUCCGGG GGGGUCAAU AAUUGGGA C T 56 CACAGAAG GGAGGAAACUCC CU NCAAGGACAUCGUCCGGG UCCACAGA UCUGUGGA U 76 GACAGUAA GGAGGAAACUCC CU NCAAGGACAUCGUCCGGG UCCACAGA AUCGGGGG C CUUNAGG GAGGGAAACUCC U NCAAGGACAUCGUCCGGG UCCACAGA AUCGGGGG C CUUNAGG GAGGGAAACUCC U NCAAGGACAUCGUCCGGG UCCACAGA GCCUUNAGG C CAUCCAGG L 762 UCCGGAAGA GGAGGAAACUCC U UCAAGGACAUCGUCCGGG UCAAGGACAUCGUCCGGG UCAAGGACAUCGUCCGGG UUCAAGACAUCGUCCGGG UUCAAGACAUCGUCCGGG UUCAAGACAUCGUCCGGG UUCAAGACAUCCGGG UUCAAGACAUCGUCCGGG UUCAAGACAUCGUCCGGG UUCAAGACAUCGUCCGGG UUCAAGACAUCGUCCGGG UUCAACACA UUCAACUCA GGAGGAAACUCC U UCAAGGACAUCGUCCGGG UUCAACCCCA UUCAACACA UUCAACUCA UUCAAGACAUCGUCCGGG UUCAACACACUCCGGG UUCAACACACACUCGGG UUCAACACACACUCGGG UUCAACACACACUCGGG UUCAACACACACUCGGG UUCAACACACACCCGGG UUCAACACACACCCGGG UUCAACACACACACCCGGG UUCAAGGACAUCGUCCGGG UUCAACACACACCCGGG UUCAACACA	1901		1757	GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG	10419
AAUTUGGA G CUCAGAGA GGAGGAAACUCC CU CAAGGACCAUCGGG UCCAAAUU UCUGUGGA G 1760 GAGAGUAA GGAGGAAACUCC UCAAGGACAUCGUCCGGG UCCACAGA AUCGGGGG G CCUUAGG 1761 CUCUAAGG GGAGGAAACUCC UCAAGGACAUCGUCCGGG UCACAGAG AUCGGGGG G CCUUAGG GAGGAAACUCC UCAAGGACAUCGUCCGGG UCUAAGGC UCAAGGACAUCGUCCGGG UCUAAGGC ACCAUACG G CAUCAGG 1764 AUAGCUUG GGAGGAAACUCC UCAAGGACAUCGUCCGGG UCAACCUCGG UCAACCUCGG </td <td>1917</td> <td></td> <td>1758</td> <td>GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG</td> <td>10420</td>	1917		1758	GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG	10420
UCUGUGGA G UNACUCUC 1760 GAGAGUAA GGAGGAAACUCC CU CAAGGACUCGGG UCCACAGA AUCGGGGG G CCUUAGAG 1761 CUCUAAGG GGAGGAAACUCC CU CAAGGACAUCGUCGGG UCUAAGGC GCCUUAGAG G CCCCGAU 1762 UCCGGAGA GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG UCUAAGGC AUCGGGGG G CAAGCUAU 1764 AUAGCUUG GGAGGAAACUCC CU CAAGGACAUCGUCCGGG UCUAAGGC GCACUCAG G CAAGCUAU 1764 AUAGCUUG GGAGGAAACUCC CU CAAGGACAUCGUCCGGG UCUAAGGC UCAGGCAA G CUAUUCUG 1765 CCUGAGUG GGAGGAAACUCC CU CAAGGACAUCGUCCGGG UCUCAGGC UCAGGCAA G UAAUUCUG 1766 UCAACUCAA GGAGGAAACUCC U CAAGGACAUCGUCCGGG UCAACAC UGGGGUGA G UGAGUUGA G UGAGGAAACUCC UCAAGGACAUCGUCCGGG UCAACAC UCAACUCAA GGAGGAAACUCC U UCAAGGACAUCGUCCGGG UCAACAC UGGGGUGA G UGAAUUGA GAGGAAACUCC UUCAAGGACAUCGUCCGGG UCAACAC UCAACUCAAUUA GGAGGAAACUCC U UCAAGGACAUCGUCCGGG UCAACAC UGGAGGAA 1767 UUCAACUCA GGAGGAAACUCC U UCAAGGACAUCGUCCGGG UCAACAC CCACCUGG G UGAAUGG CCACAAUGG CCACAAUGG CCAGGUGG CCAGGUGG CCAGGUGG CCAGGUGG CCAGGUGG CCAGGUGG CCAGGUGG CCAGGUGG CCAGGUGG C	1933	- 1	1759	GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG	10421
AUCGGGGG G CCUUAGAG 1761 CUCUAAGAG GGAGGAAACUCC CUCAAGGACAUCGUCCGG CUCAAGGACAUCGUCCGGG CUCAAAGGACAUCGUCCGGG CUCAAAGGACAUCGUCCGGG CUCAAAGGACAUCGUCCGGG CUCAAAGGACAUCGUCCGGG CUCAAAGGACAUCGUCCGGG CUCAAAGGACAUCGUCCGGG CUCAAAAAAA CUCAAAAAAA AUAAGCUUA GGAGGAAAACUCC CU CAAAGGACAUCGUCCGGG CUCAACUCA CUCACUCA CUCACUCA CUCACUCA CUCACUCA CUCACUCA	1944		1760	GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG	10422
GCCUUAGA UCCGGAAGA GGAGGAAACUCC CU UCAAGGACAUCGUCGGG UCUAAGGACAUCGUCGGG UCAAGGACAACUCGC UCAAGGACAUCGUCGGG CUAAGGACAUCGUCGGG CUAACUCA CUAAGGACAUCGUCGGG CUAACUCA CUAAGGACAUCGUCGGG CUAACUCA CUAAGGACAUCGUCGGG CUAACUCA CUAAGGACAUCGUCGGG CUAACUCA CUAAGGACAUCGUCGGG CUAACUCA CUAAGGACAUCGUCGGG CUAAGGACAUCGUCGGG CUAACCCCA CUAAGGACAUCGUCGGG CUAAGGACAUCGUCGGG CUAACCCCA CUAAGGACAUCGUCGGG UACACCCA CUAAGGACAUCGUCGGG UACACCACC CUAAGGACAUCGUCGGG UACACCCACA CUAAGGACAUCGUCGGG UACACCCCA CUAAGGACAUCGUCGGG UACACCACC CUAAGGACAUCGUCGGG UACACCACC CUAAGGACAUCGUCGGG UACACCACC CUAAGGACAUCGUCGGG UACACCACC UACAGGACAUCGUCGGG UACACCACC UACAGGACAUCGUCGGG UACAGGACAUCGUCGGG UACAGGACAUCGUCGGG UACAGGACAUCGUCGGG UACAGGACAUCGUCGGG UACAGGACAUCGUCGGG UACAGGACAUCGUCGGG UACAGGACAUCGUCGGG UACAGGACAUCGUCGGG <	2023	ט	1761	GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG	10423
ACCAUACG G CACUCAGG 1763 CCUGAGUA GGAGGAAACUCC CU UCAAGGACAUCCGGG CGAGGUAU UCAGGCAA 1764 AUAGCUUG GGAGGAAACUCC CU UCAAGGACAUCGUCGGG CUGAGUGC UCAGGCAA G CUAUUCUG 1765 CCAGAGGAAACUCC CU UCAAGGACAUCGGG CUGAACUC UGAGUUGG G UGAGUGA 1767 UUCAACUCA GGAGGAAACUCC CU UCAAGGACAUCGGG CCCAACACC UGAAUCUA G CUACCUGG 1769 UUCAACUCA GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG UAGAUCAACA UGAAUCUA G CCACCUGG 1769 ACUUCCCA GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG UACCCCCAA UGAAUCUA G CCACCUGG 1770 ACUUCCCA GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG UACCCCCAA GGGGGAA G UAAUUUGG 1771 CCAGGUGG GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG UACCCCCAA AAGUUCAGG G UAGUCAGG 1771 CCUGGAU GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG UACCCCCAA AAGUUCAGG G UAGUCAGG 1772 ACUGGAAACUCC CU UCAAGGACAUCCCGGG UACAAGGAC	2031		1762	GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG	10424
GCACUCAG G CAAGCUAU 1764 AUAGCUUG GGAGGAAACUCC CU UCAAGGACAUCGUCGGG CUGAGUGC UCAGGCAA G CUAUUCUG 1765 CAGAAUAG GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG UUGCCUGA GUGUUGGG G UGAGUUGA 1766 UCCAACUCA GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG UCACCCCA UGGGGUGA G UUGAUGAA 1769 CCAGGUGG GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG UAGAUUCA UGAAUCUA G CCACCUGG 1770 CCAGGUGG GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG UAGAUUCA CCACCUGG G UGGAAAGU 1771 CCCUGGAUG GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG UAGAUCCUC AAGAUCCA G CAUCCAG 1771 CCCUGGAUG GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG UGCAUCUU GGGAAUUA G UAGUCAC 1772 CCUGGAUG GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG UACUAAUU AGUAGUCA G CAUCCAG 1771 CCCUGGAUG GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG UACUAAUU AGUAGUCA G CUAUGUCA 1773 AUAGCUGA GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG UAAUUCCC AAUUAGUA G UCAGCUAU 1773 AUAGCUGA GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG UAAUUCCC AAUUAGUA G UCAGCUAU 1773 AUAGCUGA GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG UAAUUCCC AAUUAGUA G UAAGUAGA C CAUAUUAA GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG UAAUUCCC AAUUAGUA G CUAUGUCA C UAAGGACAUCGUCCGGG UAAUUCCC AAUUAGUA G UCAGCUAU 1773 AUAGCUGA GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG GUUGACCU AAUUAGUA G UAAUAUGG GCUAAAA GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG GUUGACCU AAUAUAGUA G UAAGACCCGGG CUAAAAA GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG GUUGACCU AAUAUAGUA G UAAGACCCCGG CAAAUUA GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG GUUGACCU AAUAUAGUA G UAAGACCCCGG CAAAUUA GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG GUUGACCUACCCCC AAUAUAGUA G UAAGACCCCCCCCCCACCCCCACCCCAC	2062	G CACUCA	1763	GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG	10425
UCAGGCAA G CUAUUCUG 1765 CAGAAUAG GGAGGAAACUCC CU CAAGGACAUCGUCGGG CUCAACACA UGGGGUGA G UGAGUGAA 1767 UUCAUCAA GGAGGAAACUCC CU UCAAGGACAUCGUCGGG UCACCCAA UGAAUCUA G CCACCUGG 1767 UUCAUCAA GGAGGAAACUCC CU UCAAGGACAUCGUCGGG UCACCCCAA UGAAUCUA G CCACCUGG 1769 ACUUCCCA GGAGGAAACUCC CU UCAAGGACAUCGUCGGG UAGAUUCA GGUGGGAA G UGGAAACU CCAAGUGG GGAGGAAACUCC CU UCAAGGACAUCGUCGGG UAGAUUCA GGUGGGAA G UAAUUUGG 1771 CCUGGAUG GGAGGAAACUCC CU UCAAGGACAUCGUCGGG UCCCCCCA AAGAUCCA G CAUCACUA GGAGGAAACUCC CU UCAAGGACAUCGUCGGG UCCCCCCA CCAGGUGG UCCCACCCA CCAGGUGG UCCCACCCA CCAGGUGG UCCCACCCAC CCAGGUGG UCCCACCCAC CCAGGUGG UCCCACCCACC UCCAGGAACUCCCCU UCCAGGACAUCGUCCGGG UCCAGGUGG UCCCCCAC UCCAGGAAUCC UCCAGGAACUCCCCU UCCAGGAACUCC UCCAGGAACUCCCCCACCC UCCAGGUGG UCCAGGUGG UCCAGGUGG UCCAG	2070	G CAAGCU	1764	GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG	10426
GUGGGGGG G UGAGUGAA 1766 UCAACUCAA GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG UCACCCCA UGGAGUGA G UUGAUGAA 1767 UUCAUCAA GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG UCACCCCA UGAAUCUA G CCACCUGG 1768 CCAGGUGG GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG UAGAUCA CCACCUGG G UGGAAGUA 1769 ACUUCCCA GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG UAGAUCA GGUGGGAA G UAAUUUGG 1771 CCUGGAUGA GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG UACUAAUU AAGAUCCA G CAUCCAGG 1772 CCUGGAUG GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG UAAUUCCC AAUUAGUA G UAGCUAG 1773 AUAGCUGA GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG UACUAAUU AGUAGUCA G CUAUGUCA 1774 UGACAUAG GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG UACUAAUU AGUAGUCA G CUAUGUCA 1774 UGACAUAG GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG UACUAAUU AUGUCAAC G UUAAUGUCA 1774 UGACAUAG GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG UUAAAUU AUGUCAAC G UUAAUGUCA 1774 UGACAUAG GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG UUGACAUCCCCGGG UUAAAACUCC CU UCAAGGACAUCGUCCGGG UUAAAACUCC	2074		1765	GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG	10427
UGGGGUGA G UNGAUGAA 1767 UUCAUCAA GAGGAAACUCC CU CAAGGUGG UAGAUUCA UGAAUCUA G CCACCUGG 1768 CCAGGUGG GAGGAAACUCC CU CCAAGGUGG UAGAUUCA CCACCUGG G UGGGAAGU 1769 ACUUCCCA GAGGAAACUCC CU UCAAGGACAUCGUCGGG UAGAUUCA GGUGGGAA G UAAUUCG CCAAAUUA GGAGGAAACUCC CU UCAAGGACAUCGUCGGG UACUCACC AAGAUCCA G CAUCCAGG 1771 CCUGGAUG GGAGGAAACUCC CU UCAAGGACAUCGUCGGG UACUCACC AAUUAGUA G UAGCUAG 1772 AUGCUGA GGAGGAAACUCC CU UCAAGGACAUCGUCGGG UACUAAUU AAUUAGUA G UAAUGUCA 1774 UGACAUAG GGAGGAAACUCC CU UCAAGGACAUCGUCGGG UACUAAUU AUGUCAAC G UUAAUAUUG CAUAUUAA GGAGGAAACUCC CU UCAAGGACAUCGUCGGG UACUACU AUGUCAAC UUUUUAGG GGAGGAAACUCC CU UCAAGGACAUCGUCGGG UAGCUACU UUAAUAUUA	2090		1766	GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG	10428
UGAAUCUA G CCACCUGG 1768 CCAGGUGG GGAGGAACUCC CU UCAAGGACAUCGUCCGGG UAGAUUCA CCACCUGG G UGGAAGGU 1769 ACTUCCCA GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG CCAGGUGG GGUGGGAA G UAAUUUGG 1770 CCAAAUUA GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG UGCAUCUU GGGAAUUA G UAGUCAGC 1772 GCUGAUG GGAGAAACUCC CU UCAAGGACAUCGUCCGGG UAAUUCCC AAUUAGUA G UAGCUAAU 1773 AUAGCUGA GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG UACUAAUU AGUAGUCA G CUAUGUCA G CUAUGUCA G CUAUGUCA G CUAUGUCA G CUAUGUCA G CUAUGUCA G UAAUUAAG GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG UGACUACU AUGUCAAC G UUAAUAUG G CUAAAGAACUCC CU UCAAGGACAUCGUCCGGG GUUGACAU UAAUAUGG G CCUAAAAA 1776 UUUUUAGG GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG CCAUAUUA UAAUAUGG G CCUAAAAA 1776 UUUUUAGG GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG CCAUAUUA	2094	UGGGGUGA G UUGAUGAA	1767	GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG	10429
CCACCUGG G UGGGAAGU 1769 ACUUCCCA GGAGGAACUCC CU UCAAGGACAUCGGG CCAGGUGG CCAGGUGG GGUGGGAACUCG G UAAUUUGG 1770 CCUGGAUG GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG UGCAUCUC CCCAGGUGG UAAUUCCC CU UCAAGGACAUCGUCCGGG UGGAUCUU GGGGAAUUA G UAGUCAGC 1772 GCUGACUA GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG UAAUUCCC AAUUAGUA G UCAGCUAU 1773 AUAGCUGA GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG UAAUUCCC AAUUAGUA G UCAGCUAU 1774 UGACAUAG GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG UACUAAUU AGUAGUCA G CUAUGUCA G UUAAUAUAU G UAAUAUAUG G CUAAAAAA 1776 UGACAUUAA GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG UUGACAU UAAUAUAG G CUAAAAAA 1776 UUUUUAGG GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG CCAUAUUA	2107		1768	GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG	10430
GGUGGGAA G UAAUUUGG 1770 CCAAAUUA GGAGGAAACUCC CU UCAAGGACAUCGUCGGG UGGAUCUU AAGAUCCA G CAUCCAGG 1771 CCUGGAUG GGAGGAAACUCC CU UCAAGGACAUCGUCGGG UAAUUCCC AAUUAGUA G UCAGCUAU 1773 AUAGCUGA GGAGGAAACUCC CU UCAAGGACAUCGUCGGG UAAUUCCC AGUAGUCA G CUAUGUCA 1774 UGACAUAG GGAGGAAACUCC CU UCAAGGACAUCGUCGGG UACUAAUU AGUAGUCA G CUAUGUCA 1774 UGACAUAG GGAGGAAACUCC CU UCAAGGACAUCGUCGGG UACUAAUU AUGUCAAC G UUAAUAUG 1775 CAUAUUAG GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG GUUGACAU UAAUAUGG G CCUAAAAA 1776 UUUUUAGG GGAGGAAACUCC CU UCAAGGACAUCGUCGGG CCAUAUUA	2116	CCACCUGG G UGGGAAGU	1769	GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG	10431
AAGAUCCA G CAUCCAGG 1171 CCUGGAUG GGAGGAAACUCC CU UCAAGGACAUCGGGG UGGAUCUU GGGAAUUA G UAGUCAGC 1772 GCUGACUA GGAGGAAACUCC CU UCAAGGACAUCGUCGGG UAAUUCCC AAUUAGUA G UCAGCUAU 1773 AUAGCUGA GGAGGAAACUCC CU UCAAGGACAUCGUCGGG UACUAAUU AGUAGUCA G CUAUGUCA 1774 UGACAUAG GGAGGAAACUCC CU UCAAGGACAUCGUCGGG UGACUACU AUGUCAAC G UUAAUAUG 1775 CAUAUUAG GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG GUUGACAU UAAUAUGG G CCUAAAAA 1776 UUUUUAGG GGAGGAAACUCC CU UCAAGGACAUCGUCGGG CCAUAUUA	2123	GGUGGGAA G UAAUUUGG	1770	GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG	10432
GGGAAUUA G UAGUCAGC 1772 GCUGACUA GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG UACUAAUU AAUUAGUA G UCAGCUAU 1773 AUGACUGA GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG UACUAAUU AGUAGUCA G CUANGUCA 1774 UGACAUAG GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG UAGACUACU AUGUCAAC G UUAAUAUG 1775 CAUAUUAA GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG GUUGACAU UAAUAUGG G CCUAAAAA 1776 UUUUUAGG GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG CCAUAUUA	2140	AAGAUCCA G CAUCCAGG	1771	GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG	10433
AAUUAGUA G UCAGCUAU 1773 AURGCUGA GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG UACUAAUU AGUAGUCA G CUAUGUCA G CUAUGUCA G CUAUGUCA G UUAAUAUG G CUAAAACUCC CU UCAAGGACAUCGUCCGGG UGACUACU AUGUCAAC G UUAAUAUG G CUUAAAAA 1775 CAUAUUAA GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG GUUGACAU UAAUAUGG G CCUAAAAA 1776 UUUUUAGG GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG CCAUAUUA	2155	GGGAAUUA G UAGUCAGC	1772	GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG	10434
AGUAGUCA G CUANGUCA 1774 UGACAUAG GGAGGAAACUCC CU: UCAAGGACAUCGGGG UGACUACU AUGUCAAC G UUAAUAUG 1775 CAUAUUAA GGAGGAAACUCC CU UCAAGGACAUCGUCGGG GUUGACAU UAAUAUGG G CCUAAAAA 1776 UUUUUAGG GGAGGAAACUCC CU UCAAGGACAUCGUCGGG CCAUAUUA	2158	AAUUAGUA G UCAGCUAU	1773	GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG	10435
AUGUCAAC G UDAADADG 1775 CAUAUDAA GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG GUUGACAU UAAUAUGG G CCUAAAAA 1776 UUUUUAGG GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG CCAUAUUA	2162	AGUAGUCA G CUAUGUCA	1774	GGAGGAAACUCC CU: UCAAGGACAUCGUCCGGG	10436
UAAUAUGG G CCUAAAAA 1776 UUUUUJAGG GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG CCAUAUUA	2173	AUGUCAAC G UUAAUAUG	1775	GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG	10437
	2183	UAAUAUGG G CCUAAAAA	1776	GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG	10438

ACUTUUGG G CGAGAAAC 1 AAUAUTUG G UGUCCUUUU 1 CUUTUUGGA G UGUGGAUU 1 ACGAAGAG G CAGGUCCC 1 AGACGAAG G UCCCAAAC 1 AGACGAAG G UCCCAAAC 1 AUCGCCGC G UCCCAAAAC 1 CAAUGUUA G UAUUCCUU 1 CUUCUAAG G UGGGAAAC 1 UUUACGGG G CUUUAUUC 1 CCUUAAAUG G CAAAUUUGU 1 AGAUGUAA G CAAAUUUGU 1 CCCUUACA G UAAAUGAA 1 CCCUUACA G UAUAAUCA 1 AGUAAACG G UAUAAUCAU 1 AGUAAACG G UAUAAUCAU 1 AGUAAACA G UAAAUCAU 1 AGUAAUGUA G UAAAUCAU 1	GUUUCUCG AAAAGACA AAUCCACA GGGACCUG	CU UCAAGGACAUCGUCCGGG	10440
	AAAAGACA AAUCCACA GGGACCUG	COCCULATION AND A COLUMN	10440
	AAUCCACA	CU UCAAGGACAUCGUCCGGG	10441
	GGGACCUG	5	10442
	******	CU UCAAGGACAUCGUCCGGG	10443
		CU UCAAGGACAUCGUCCGGG	10444
	1783 GAUUGAGA GGAGGAAACUCC	: CU UCAAGGACAUCGUCCGGG CUUCGUCU	10445
			10446
	1785 AAGGAAUA GGAGGAAACUCC	CU UCAAGGACAUCGUCCGGG UAACAUUG	10447
	1786 GUUUCCCA GGAGGAAACUCC	CU UCAAGGACAUCGUCCGGG CUUAUGUG	10448
	1787 GAAUAAAG GGAGGAAACUCC	CU UCAAGGACAUCGUCCGGG CCCGUAAA	10449
	1788 GCAAGGUA GGAGGAACUCC	CU UCAAGGACAUCGUCCGGG CGUAGAAG	10450
	1789 GGAGUUUG GGAGGAAACUCC	8	10451
	1790 ACAAAUUG GGAGGAAACUCC	CU UCAAGGACAUCGUCCGGG UUACAUCU	10452
	1791 GUAAGGGG GGAGGAACUCC	CU UCAAGGACAUCGUCCGGG CCCACAAA	10453
	1792 UUCAUUUA GGAGGAAACUC	GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG UGUAAGGG	10454
	1793 GGAUAAAA GGAGGAAACUC	GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG CUAGCAGG	10455
	1794 GGAUAAUA GGAGGAAACUCC	: CU UCAAGGACAUCGUCCGGG GGUUUGAU	10456
	1795 ACUACAUA GGAGGAAACUC	GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG UCUGGAUA	10457
+	1796 AUGAUUAA GGAGGAAACUC	GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG UACAUACU	10458
L	1797 GAUCCCCG GGAGGAACUC	GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG CUUCCAAA	10459
	1798 CGUGUGGA GGAGGAACUCC	cu ucaagacaucguccgg ucucuuu	10460
	1799 AGGCGCUA GGAGGAAACUCC	CU UCAAGGACAUCGUCCGGG GUGUGGAC	10461
	1800 AUGAGGCG GGAGGAACUCC	CU UCAAGGACAUCGUCCGGG UACGUGUG	10462
	1801 UAUGGUGA GGAGGAAACUCC	CU UCAAGGACAUCGUCCGGG CCGCAAAA	10463
	1802 CUCCCAUG GGAGGAACUCC	: CU UCAAGGACAUCGUCCGGG UGUAGAUC	10464
	1803 AAGACCAA GGAGGAAACUCC	cu ucaaggacaucguccggg cucccaug	10465
G UCUUCCAA	1804 UUGGAAGA GGAGGAAACUCC	cu ucaaggacaucguccggg caaccucc	10466
G CAUGGGGA	1805 UCCCCAUG GGAGGAAACUCC	cu ucaaggacaucguccggg cuutucga	10467
G UUGGACCC	1806 GGGUCCAA GGAGGAAACUCC	: CU UCAAGGACAUCGUCCGGG UGAUGAUC	10468
G CCAACUCA	1807 UGAGUUGG GGAGGAACUCC	cu ucaaggacaucguccggg uuugaaug	10469
<u> </u>	1808 UGGAUUUA GGAGGAAACUCC	CU UCAAGGACAUCGUCCGGG UGAGUUGG	10470
GACAACUG G CCGGACGC 18	1809 GCGUCCGG GGAGGAAACUCC	CU UCAAGGACAUCGUCCGGG CAGUUGUC	10471
G UGGGAGUG	1810 CACUCCCA GGAGGAAACUCC	CU UCAAGGACAUCGUCCGGG CUUGUUGG	10472
G UGGGAGCA		cu ucaaggacaucguccggg ucccaccu	10473
G CAUUCGGG	1812 CCCGAAUG GGAGGAACUCC	cu ucaaggacaucguccggg ucccacuc	10474
GCAUUCGG G CCAGGGUU 18	1813 AACCCUGG GGAGGAACUCC	cu ucaaggacaucguccggg ccgaaugc	10475

3047	GGGCCAGG G UUCACCCC	1814	GGGGUGAA GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG CCUGGCCC	10476
3077	CUGUUGGG G UGGAGCCC	1815	GGGCUCCA GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG CCCAACAG	10477
3082	GGGGUGGA G CCCUCACG	1816	CGUGAGGG GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG UCCACCCC	10478
3097	cecucase e ccuacuca	1817	UGAGUAGG GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG CCUGAGCG	10479
3117	cueuecca e caecuccu	1818	AGGAGCUG GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG UGGCACAG	10480
3120	ueccaeca e cuccuccu	1819	AGGAGGAG GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG UGCUGGCA	10481
3146	ACCAAUCG G CAGUCAGG	1820	CCUGACUG GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG CGAUUGGU	10482
3149	AAUCGGCA G UCAGGAAG	1821	CUUCCUGA GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG UGCCGAUU	10483
3158	UCAGGAAG G CAGCCUAC	1822	GUAGGCUG GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG CUUCCUGA	10484
3161	GGAAGGCA G CCUACUCC	1823	GGAGUAGG GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG UGCCUUCC	10485
3204	AUCCUCAG G CCAUGCAG	1824	CUGCAUGG GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG CUGAGGAU	10486
31	CUCUUCAA G AUCCCAGA	1999	UCUGGGAU GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG UUGAAGAG	10487
38	AGAUCCCA G AGUCAGGG	2000	CCCUGACU GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG UGGGAUCU	10488
44	CAGAGUCA G GCCCCUGU	2001	ACAGGGCC GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG UGACUCUG	10489
45	AGAGUCAG G GCCCUGUA	2002	UACAGGGC GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG CUGACUCU	10490
64	unccuecu e eneecucc	2003	GGAGCCAC GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG AGCAGGAA	10491
67	cuecueeu e ecuccaeu	2004	ACUGGAGC GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG ACCAGCAG	10492
79	CCAGUUCA G GAACAGUG	2005	CACUGUUC GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG UGAACUGG	10493
80	CAGUUCAG G AACAGUGA	2006	UCACUGUU GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG CUGAACUG	10494
66	ccuecuca e aauacueu	2007	ACAGUAUU GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG UGAGCAGG	10495
135	UUAUCGAA G ACUGGGGA	2008	UCCCCAGU GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG UUCGAUAA	10496
139	CGAAGACU G GGGACCCU	2009	AGGGUCCC GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG AGUCUUCG	10497
140	GAAGACUG G GGACCCUG	2010	CAGGGUCC GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG CAGUCUUC	10498
141	AAGACUGG G GACCCUGU	2011	ACAGGGUC GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG CCAGUCUU	10499
142	AGACUGGG G ACCCUGUA	2012	UACAGGGU GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG CCCAGUCU	10500
159	CCGAACAU G GAGAACAU	2013	AUGUUCUC GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG AUGUUCGG	10501
160	CGAACAUG G AGAACAUC	2014	GAUGUUCU GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG CAUGUUCG	10502
162	AACAUGGA G AACAUCGC	2015	GCGAUGUU GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG UCCAUGUU	10503
175	UCGCAUCA G GACUCCUA	2016	UAGGAGUC GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG UGAUGCGA	10504
176		2017	CUAGGAGU GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG CUGAUGCG	10505
184	G GACCCC	2018		10506
185	Q	2019	GGAGGAAACUCC CU	10507
204		2020	GGAGGAAACUCC CU	10508
207	ල ලෙලගග	2021	AAAAACCC GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG GCCUGUAA	10509
208		2022	GAAAAACC GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG CGCCUGUA	10510
209		2023	GGAGGAAACUCC CU	10511
246	AUACCACA G AGUCUAGA	2024	UCUAGACU GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG UGUGGUAU	10512

26.1 CUCDUGGED G GANCHUCUS C GANCEARACTUC CE UTUARGARACHUCCUCCOG GANCHUCUCUS CONCORDANA 1.01 26.4 CUCDUGGED G ANCTUCUCU 20.29 MAGNARUCU G GANCHAARACTUC CE UTUARGARACHUCCUCCOG CURARAAN 1.01 26.4 UCCUGGED G ACUTUCUC 20.29 MAGNARUCU CURAGARACTUCCOCOG CARAARACTUC CU UTARGARACHUCCOCOG CURARAAN 1.01 28.5 UUTUCUUTA G GROBARACTC 20.31 GGUGUUCC GRAGARACTCC CU UTARGARACTUCCOGO CURARAAN 1.01 28.6 UUTUCUUTA G GROBARACTC 20.32 GGOGUUCC GRAGARACTCC CU UTARGARACTUCCOGO CURARAAN 1.01 28.7 UUTUCUTAGG G GAACACCC 20.32 GGOGUUC GRAGARACTCC CU UTARGARACTUCCOGO CURAGARACTCCOGO CURAGARACTCCOGO CURAGARACTCCOGO COCORDARA 1.01 28.6 UUTUCUTAGG G GAACACCC 20.35 GGOGUUC G GAGGARAACTCC CU UTARGARACTCCOGO CURAGARACTCCOGO COCORDARA 1.01 39.7 UUTUCUCCO G GANCHUCA 20.35 GGCGUUCC 20.35 GGCGUUCC COCORDARACTCC 1.02AAGARACTCCOCO 1.02AAGARACTCCOCO 1.02AAGARACTCCOCO 1.02AAGARACTCCOCO 1.02AAGARACTCCOCO 1.02AAGARACTCCOCO 1.02AAGARACTCCOCO 1.02AAGARACTCCCOCO 1.02AAGARACTCCCOCO 1.02AAGARACTCCOCO 1.02AAGARACTCCCOCO 1.02AAGARACTCCCOCO 1	253	AGAGUCUA G ACUCGUGG	2025	CCACGAGU GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG UAGACUCU	10513
CUCUGUAGU G GAMARANCHO GRAGARANCHOC CU UCANGGACUCCUCGGG ACCCAGA AUTUUCUA G GAGGARANCHOC CU UCANGGACUCCUCCGG CACCAGA AUTUUCUA G GAGGARANCHOC CU UCANGGACUCCUCCGG UCARANA UUCUCUAGG G GAGACACC CU CANGGARANCHOC CU UCANGGACUCCUCCGG UCARANA UUCUCUAGG G GAGACACC CU CANGGARANCHOC CU UCANGGACUCCUCCGGG CCCUNGA UUCUCUAGG G GAGACACC CU CANGGARANCHOC CU UCANGGACAUCCUCCUCCGGG CCCUNGA UUCUCUCU G GACACACU G UUCUCUCU G GACACACU GAGGARAACUC CU UCANGGACAUCCUCCUCCGGG CCCUNGA UUCUCUCU G GACACACU GAGGARAACUC CU UCANGGACAUCCUCCUCCGGG ACCACACA UUCUCUCU G GACACACU GAGGARAACUC CU UCANGGACAUCCUCCGGG ACCACACACA UUCUCUCU G GACACACACACAG GAGGARAACUC CU UCANGGACAUCCUCCGGG CACCACACAA UUCUCUCU G GACACACACACAG GAGGARAACUC CU UCANGGACACUCCGGG CACCACACAACACACACACACACACACACACACA	260	υ	2026	GGAGGAAACUCC CU	10514
UCROMISSION G ACUNCUCU 2028 AGRIGADAD GORGADANCUCC CU UCLAGGRACHICGUCCOGGG UNGADAN UNUTUCUAGG G GGGGARACACC 2029 GGGUGUCCC GGAGGARACCCC CU UCLAGGRACHICGUCCGGG UNGADAN UNUTUCUAGG G GGGARACACC 2029 GGGUGUCCC GGAGGARACACCC CU UCLAGGACHICGUCCGGG CURGADA UUTUCUAGG G GAGACACC 2021 GGGUGUCC GGAGGARACACCC CU UCLAGGACHICGUCCGGG CURGADA UUTUCUAGG G GAACACCC 2023 GGGUGUUC GGAGGARACACCC CU UCLAGGACHICGUCCGGG CUCAGAA UUTUCUAGG G AACACCC 2023 GGGGUGUUC GGAGGARACACCC CU UCLAGGACHICGUCCGGG CCCCURGAA UUTACCCCU G GAUGGAGG CACACACC 2023 GGGGUGUUC GGAGGARACACCC CU UCLAGGACAUCGUCCGGG CCCCURGAA UUTACCCCU G GAUGGAGAACCCC CU UCLAGGACAUCGUCCGGG CACCARACACACACACACACACACACACACACACACACA	263	O	2027	GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG	10515
MUNICUER 6 GREGARAC 2029 UGUIDUCCC GRAGARACUCC CU UCAAGGACUCGUCGGG CURGARA UUTUCUAGG 6 GREGARACC 2030 GUGUUCCC GRAGARACUCC CU UCAAGGACUCGUCGGG CURGARA UUTUCUAGG 6 GREGARACC 2031 GUGUUCCC GRAGARACUCC CU UCAAGGACUCGUCGGG CURGARA UUTUCUAGG 6 GRACACC 2032 GGGGUUUCC GRAGARACUCC CU UCAAGGACAUCGUCGGG CURGARA UUCUAGGG 7 BACACCC 2033 GGGGUUUCG GRAGARACUCC CU UCAAGGACAUCGUCGGG CCCTUGAA UUTUCUAGGG 7 BACACCC 2034 AUUUUGGG GRAGARACUCC CU UCAAGGACAUCGUCGGG CCCTUGAA UUTUCUAGGG 7 BAUGUCC 2035 GCGGUUAG GRAGARACUCC CU UCAAGGACAUCGUCGGG CCCTUGAA UUTUCUAGGU G AUUTUCAC 2036 GACACACAC GRAGARACUCC CU UCAAGGACAUCGUCGGG CAGCARACA UUTUCUAGGU G AUUTUCA 2039 HAAACGG GRAGARACUCC CU UCAAGGACAUCGUCGGG CAGCARACA UUTUCUAGU G GAUCUUUA 2039 HAAACGG GRAGARACUCC CU UCAAGGACAUCGUCGGG CAGCARACA UUCUAGGU G GUUUCAC 2043 HUAAACGG GRAGARACUCC CU UCAAGGACAUCGUCGGG CAGCARACA UUCUAGGA G GUUUCAC 2043 HUAAACGG GRAGARACUCC CU UCAAGGACAUCGUCGGG CAGCARACA UUCUAGGA G GUUUCAC 2043 HUAAACGG GRAGARACUCC CU UCAAGGACAUCGUCGGG CAGCARACA UUCUAGGA G GAUCUACA 2043 HUAAACGG GRAGARACCC CU UCAAGGACAUCGUCGGG CAGCARACA	264		2028	GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG	10516
UNDUCUADA G G GGGGGGGG GGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGG	283	ß	2029	GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG	10517
UUTUCINGG G GRAACHCC 2011 GGUGUUCC GRAGGAACHCCC CU UCAAGGACUCGUCCGGG CCCUAGAA UUTUCINGGG G GAACACCC 2032 GGGUGUUC GAAGGAACUCCC CU UCAAGGACUCGUCCGGG CCCUAGAA UUTUCINGGG G AACACCCC 2033 CGGGUGUU GAAGGAACUCC CU UCAAGGACUCGUCGGG AAGACACA UUTUCINGGG G AACACCCC 2034 AUTUUGGC GGAGGAACUCC CU UCAAGGACUCGCGGG AAGACAACA UUTUCINGGG G AUGUACCC 2035 ACACACCCC UUAUCGCU G GAUGUACU 2035 ACACACCCC GACAACACU GGAGGAACACCC CU UCAAGGACAUCGCGGG AACACAAA UUAUCGCU G GAUGUUC 2035 ACACACAC GAACACACA GUUCUUCU G AUGUACUC 2040 UAAAACC GGAGGAACACCC CU UCAAGGACAUCGUCCGGG AACACAAA UUCUUCUG G ACUACACA 2040 UAAAACC GAACAAACCC CU UCAAGGACAUCGUCCGGG AACACAAA UUCUUCUG G ACUACACA GAACAACAC GAACAACAC GAACAACAC GAACAACAC UUCUUCUG G ACUACACAC G AACAACAC GAACAACAC GAACAACAC <td>284</td> <td>ບ</td> <td>2030</td> <td>GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG</td> <td>10518</td>	284	ບ	2030	GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG	10518
UNCUINGEGG G BACCACCE 2032 GGGUIGUU GRAGGARACCE CU UCANGGACAUCGUCCGCGCCCCURGA UUCUNGGGG G BACACCCC 2033 AUUUUGGC GRAGGARACCCC CU UCANGGACAUCGUCCGGG CCCCURGA UUCUNGUU G GCCAAAAU 2034 AUUUUGGC GRAGGARACCCC CU UCANGGACAUCGUCCGGG ACCACAAA UUCUNCUCU G GUUAUCGC 2035 GACACAUC GBAGGARACCCC CU UCANGGACAUCGUCCGGG ACCACAAA UUCUNCUCU G GAUGUUCU 2039 AGACACCO GBAGGARACCCC CU UCANGGACAUCGUCCGGG CAGCGAUA UUCUNCUCU G GAUGUUCU 2039 UAAAGAAC GBAGGARACCCC CU UCANGGACAUCGUCCGGG CAGCGAUA UUCUUCUU G GAUUUCU 2040 UBARAGAAC GBAGGARACCCC CU UCANGGACAUCGUCGGG CAGCACAA UUCUUCUU G GAUCUUCU 2041 UUGAUGAAC GAACGAAAACCC CU CAAGGACAACCGGG CAGCACAACAAAA UUCUUCUG G ACCAUUCA 2041 UUGAUGAAC GBAGGAAACCC CU CAAGGACAACGGGG CAGCACAACAAAAAA UUCUUCUG G ACCAUUCA 2041 UUGAUGAU GAACACAAAAA GAACACAAAAAAAAAAAACACC CU CAAGGACAACGGGGGAAACGGGGAAAACGGGGAAAACGGGGAAAAAA	285	o.	102	GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG	10519
UCURGACIO G ACCAMANU 2033 CGGGUGUU G GACCACUACA UGUGUCUU G GCCRAANU 2034 AUUUUGGC CU UCAAGGACAUCGUCCGGG AGGACAA UURUCCCU G GUURUCC 2035 GCCAMAACU GAGGAAACUCC CU UCAAGGACAUCGGGG AGGACAA UURUCCCU G GUURUCC 2035 GCCAMACAU GAGGAAACUCC CU UCAAGGACAUCGGGG AGGACAA UURUCCCU G AUGUUC 2037 AGACACAU GAGGAAACUCC CU UCAAGGACAUCGGGG CAGCGAUA UURUCCCU G AUGUUCA 2038 UNAAACG GAGGAAACUCC CU UCAAGGACAUCGGGG CAGCGAUA UUCUUGUU G GAUCUUCA 2038 UNAAACG GAGGAAACUCC CU UCAAGGACAUCGGGG CAGCGAUA UUCUUGUU G GACUAUCA 2040 UUGAUGGU G GAGGGAAACUCC CU UCAAGGACAUCGGGG CAGCGAUA GUUCUUCU G GACUAUCA 2041 UUGAUGGU G GAGGGAAACUCC CU UCAAGGACAUCGGGG CAGAGAAC UUCUUGU G GAUCUUCA 2042 UUGAUGGU G GAGGGAAACUCC CU UCAAGGACAUCGGGG CAGAGAAC UUCUUGU G ACUAUCA 2043 UUGAUGGU G GAGGGAAACUCC CU UCAAGGACAUCGGGG GAGAGACA UUCUUGU G ACUAUCA 2043 UUGAUGGU C GAGGGAAACUCC CU UCAAGGACAUCGGGG GAGAGAACUC UUCUUGU G ACCAUCC 2043 UUGAUGGU C GAGGGAAACUCC CU UCAAGGACAUCGGGG GAGGAGAACUC CCAGCACC 2043 UUGAUGGU C GAGGGAAACUCC CU UCAAGGACAUCGGGG GAGGGGGGGGGG	286	O	2032	GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG	10520
UGUIGNOCHA G GOCCAMANI 2034 AUTURGGC COLORAGAACHOUGGC AGACACHA UUDUGGCU G GUNDAGGACAUCGUCCGGG GAGARAAC GAGARA	287	Ö	2033	GGAGGAAACUCC CU	10521
UNIVERSECU G GUIMANCCC 2035 GCGAMAAC GRAGGAAACUCC CU UCAAGGACAUCCGGG GAGCAUTA UNIVEGUCU G GAUGUGUC 2036 GCACACAUC GRAGGAAACUCC CU UCAAGGACAUCGUCCGGG CACCAUTA UNAUGCUGU G GAUGUGUC 2037 AGACACAC GRAGGAAACUCC CU UCAAGGACAUCGUCCGGG CACCAUTA GUUCUUCU 2039 WAAAACC GRAGGAAACUCC CU UCAAGGACAUCGGUCCGGG CAACAGAA UUCUUCUG G GUUCUUCU 2039 MGAAGAAC GRAGGAAACUCC CU UCAAGGACAUCGGUCCGGG CAAAGAAA UUCUUCUG G GACCUUCA 2041 UUCAAGGAACUCGGUCCGGG GAAAAGAA UUCUUCUG G AUCUUCU 2042 UUCAAGGAACUCGUCCGCG UUCAAGGAACUCGUCCGGG GAAAAGAA ACUNICAAA G GUUCUUCA 2043 UUCAUGAAACUC CU UCAAGGACAUCGUCCGGG GAAAAACUC UAAUUCCAA G GAUGAUCA 2044 UUCAUGAAACUC CU UCAAGGACAUCGUCCGGG GAGAAAUC CAACAACAA AGAGGAAACUC CU UCAAGGACAUCGUCCGGG GAGAAAUC CUCAAGACC CAACAACAA AGAGGAAACUC CU UCAAGGACAUCGUCCGGG GAGAAAUC CAACAACAA UUCAAGGACAACCGGG GAAGGAAACUCC CU UCAAGGACAUCGUCCGGG GAGAAAUC CAACAACAA AGAGGAAACUC CU UCAAGGACAUCGUCCGGG GAGAAAUC CAACAACAA AGAGGAAACUC GAAGGAAACUCC CU UCAAGGACAUCGUCCGGG GAGAAACUC CAACAACAA AAACCUCAAG G AACCUCUA 2045 UUCAAGGACAACACGACAAAAAAAAAAAAAAAAAAAAAA	304		2034	GGAGGAAACUCC CU	10522
UNAUCGCU G GANGGARDA CARACANU GANGGARANCUC CU UCAAGGACUCCGGG AACGANA UNAUCGCUG G GCGUUUUA 2037 AAGACACAU GANGGARANCUC CU UCAAGGACAUCGUCCGGG GACGANA UNAUCGCUG G GCGUUUUA 2039 AAGACACAU GANGGARACUCC CU UCAAGGACAUCGUCCGGG GANGACAC UUCUUGUU G GCGUUUUA 2039 AGAAGAAC GANGGAAACUCC CU UCAAGGACAUCGUCCGGG GANGAACAC UUCUUGUU G GACUNUCA 2040 UGAUNGUC GANGGAAACUCC CU UCAAGGACAUCGUCCGGG GANGAACAC UUCUUCUG G AACUNUCA 2041 UUGAUGAU GANGGAAACUCC CU UCAAGGACAUCGUCCGGG GANGAACUC UACUUCAG GAUNGUUCA 2043 UGACAUGA UACACACAC GANCAUUCA 2044 UUGAUGAU GANGGAAACUCC CU UCAAGGACAUCGUCCGGG GANGAACUC CCAACACAC GANCAUUCA 2044 UUGAUGAU GANGGAAACUCC CU UCAAGGACAUCCGGCGG GANGACUC CCAACACAC GANCAUUCA 2044 UUGAUGAU GANGGAAACUCC CU UCAAGGACAUCCGGG GANGACUC CCAACACAC GANCAUCA 2044 UUGAUGAU GANGGAAACUCC CU UCAAGGACAUCCGGG GANGACUC CCAACACAC GANCAUCA 2044 UUGAUGAAACUCC CU UCAAGGACAUCGUCCGGG GANGACUC CCAACACAC GANCAUCA 2044 UUGAUGAAACUCC CU UCAAGGACAUCGUCCGGG GANGACUC CUCACACAC GANCAUCA 2048	367	UUUGUCCU G GUUAUCGC	2035	GGAGGAAACUCC CU	10523
UNICUDICUR G RIGUIGUUM 2037 ARACARAN GRAGGAAACUC CU UCAAGGACNUCGUCGGG CAGAGCAN GURUCGUGG G GCGUUUM 2038 UAAAACC GRAGGAAACUC CU UCAAGGACNUCGUCGGG AGAAGAC GUUCUUCU 2019 HABAAACC GRAGGAAACUC CU UCAAGGACAUCGUCGGG AGAAGAAC GUUCUUCUG G ACUAUCA 2041 UUGAUAGU GAGGAAACUC CU UCAAGGACAUCGUCGGG CAGAAGAAC UUCUUCUG G ACUAUCA 2042 CAACAUAC GAGGAAACUC CU UCAAGGACAUCGUCGGG CUGGAAUA UUCUUCUG G ACUAUCA 2043 UUGAUAGU GAGGAAACUC CU UCAAGGACAUCGUCGGG UGGAAUA UUCUUCUG G ACUAUCA 2044 UUGAUGAU GAGGGAAACUC CU UCAAGGACAUCGUCGGG UGGAAUA CCAACACC G GAUCGUCA 2045 UUGAUGAU GAGGGAAACUC CU UCAAGGACAUCGUCGGG UGGAAUA CCAACACC G AACCAUC 2046 UUGAUGAU GAGGAAACUC CU UCAAGGACAUCGUCGGG UGGAGCUG CCAACACC G AACCAUC 2046 UUGAUGAU GAGGGAAACUC CU UCAAGGACAUCGUCGGG UGGAGCUG CCACACCC G AACCAUC 2046 UUCAAGGAAACUC CU UCAAGGACAUCGUCGGG UGGAGCUG CCACCACC G AACCAUC 2046 UUCAAGGAAACUC CU UCAAGGACAUCGUCGGG UGGAGCUGG CCACCACC G AACCUCU 2044 UUCAAGGAA GAGGGAAA	377	UDAUCGCU G GAUGUGUC	2036	GGAGGAAACUCC CU	10524
GUEGUCUGO G GCGUUUUUA 2038 UDAAAACGC GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG GACAACAC UUCUUCUUG G GUUCUUCU 2039 AGAAGAAC GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG AGAAGAA UUCUUCUU G GACUAUCA 2040 UGGAGGAAACUCC CU UCAAGGACAUCGUCCGGG AGAAGAA UUCUUCUU G GACUAUCA 2041 UUGAUAGU GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG UGAAAUA UUCUUCUU G GACUAUCA 2042 CAACAUAC GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG UGGAAUUA ACUAUCAA 2043 UGAUGGUC GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG UGGAAUUA ACUAUCCAA 2044 UUGAUGGU GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG UGGAAAUU CCAGCACCG GACCAUGC 2044 UUGAUGGU GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG GUGGAAUU CCAGCACCG GACCAUGC 2045 UGAAGGUC GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG GUGGACAU CCGCCACA GACUCCAA 2046 UUCCCGUC GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG GUGGACAU CCGCCACA GACCUCCAA 2049 UUUCCGUC GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG GUGGGACA CCACACAC GACCACAAC GACGGAAACUC CU CAAGGACAUCGUCCGGG GUGGGACAACUCGC CU UCAAGGACAUCGUCCGGG GUGGGACAACUCG CCGGGGAAACUCG CCGGGGGAAACUCG CCGGGGGACAACUCGC CO UCAAGGACAUCGUCCGGG GUGGGACAACUCG CCGGGGGAAACUCG CCGGGGGAAACUCG CCGGGGGAAACUCG CCGGGGGAAACUCG CCGGGGGAAACUCG CCGGGGGAAACUCG CCGGGGGAAACUCG CCGGGGGACAACUCGCGGG GAGGGAAACUCG CCGGGGGAAACUCG CCGGGGGAAACUCG CCGGGGG	378	UAUCGCUG G AUGUGUCU	2037	GGAGGAAACUCC CU	10525
UNCUUGUU G GUUCUUCU 2039 NARAGRAC GGAGGAAACUCC CU UCAAGGACUCGGG AACAAGAA GUUCUUCUU G GACUBUCCA 2040 UGABURGUC GO UCAAGGACACUCCGGG GAAAGAAC GUUCUUCUU G GACUBUCA 2041 UUGABURGU GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG UGAAAUU ACUBUCAA GAACAUAC GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG UGAAAUU UNCUUCUG G AUCAUCA 2043 UUGAUGAU GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG UGAAAUU CCAGCACG G AUCAUCA 2044 UUGAUGAU GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG UGGAAUU CCAGCACG G AUCAUCA 2044 UUGAUGAU GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG UGGAAUU CCAGCACG G ACCAUGC 2045 UCAUGGUC GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG CUGGAAUU CCAGCACG G AACCCUCA 2046 UUCAUGGUC GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG GUGGUCGGG CCAGCAAC GAACCUCA 2045 UUCAGGUC GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG GUGGUCGGG CCAGCAAC GAACCUCA 2045 UUCCCGUC GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG GUGGUCCGGG CCAGCAAC GAACCUCA AACCUACG AACGGAAACUC CUAAGGGAAACUCC CUAAGGACAUCGUCCGGG GUGGAGAACUC CCAGCAAC GACCACAC AACCACACA AACCACACA GAACCACACA GAACCACACA GAACCACACA GAACCACACA	389	guencuec e ecennuay	2038	ខ	10526
QUINCULUCU G GANCUANICA 2040 UGANUAGU G GANCUANICA LUGANUAGU GGAGGAAACUCC CU UCAAGGACAUCGUCGGG CAGAGAAA UNCUUCUG G ANCHUCAA 2041 UUGAUGAGU GGAGGAAACUCC CU UCAAGGACAUCGUCGGG UGGAAAUA ACUAUCAA G GAUCAUCAA 2043 UGAUGAAUC CU UCAAGGACAUCGUCGGG UGGAAUUA AAUUCCAA G AUCAUCAA 2043 UGAUGAAUC CU UCAAGGACAUCGUCGGG UGGAAUUA CCAGCACC G AUCAUCAA 2045 UGAUGAAUC CU UCAAGGACAUCGUCCGGG UGGAAUUA CCAGCACC G ACCAUGC GACCAUGC GACCAUCC GACCAUCC CCAGCACC G ACCAUCC GACAUGGUC GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG UGGAGAAUC CCAGCACC G ACCAUCC GACAUGGUC GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG UGGAGGACA CCAGCACC G AACCUCC GACAUGGUC GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG UGGAGGACA UGCUCAAC G AACCUCC GACAGGAAACUC CU UCAAGGACAUCGUCCGGG UGGAGGACA UGCUCAAC G AACCUCAC GACAGGAAACUC CU UCAAGGACAUCGUCCGGG UGGAGGACA AACCUCAC G AACCUCAC GACGGAAACC CU UCAAGGACAUCGUCCGGG UGGAGGACA AACCUACG AACCUACG AAC	441	uncancena e enacanca	2039		10527
WUCDUCUG G ACUANCAA 2041 WUGANAGUAACCC CU UCAAGGACACUCGUCCGGG CAGAAGAA ACUANCCAA G GUAGUUGA 2042 CAACANUAC GGAGGAAACUCC CU UCAAGGACACUCGGGG UGGAAUUA UAAUUCCAG G AUCAUCAA 2043 UGAUGAUG GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG UGGAAUUA AAUUCCAG G AUCAUCAA 2044 UUGAUGAU GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG GGGGCUGG CCAGCACCG G ACCAUGC 2045 GCAUGGGU GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG GGGGCUGG CCAGCACCG G ACCAUGC 2046 UGCAUGGU GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG GGGGCUGG CCAGCACC G ACCAUGC 2047 AGAGGUC GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG GGGGCUGG CUGCUCAA G GACCAUCA 2049 UUCCGUC GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG GUGAGCUC CUGCUCAA G GACCAUCA 2049 UUCCGUC GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG GUGAGGCA AACCUACG G ACCGAAA CUCACCGCG GAGGGAAACUCC CU UCAAGGACAUCGUCCGGG GUGAGGAA CUCACCGCG GAGGGAAACUCC CU UCAAGGACAUCGUCCGGG GUGAGGAA AACCUACG G ACCGAAAC 2050 GUUCCGUC GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG GUGAGGAA CUCACUCCGG GAGGGAAACUCC CU UCAAGGACAUCGUCCGGG GUGAGGAA AACCUACG G ACCAUGC 2051 GCAGGUAAACCC CU UCAAGGACAUCGUCCGGG GUGAGGAAACUCC CU UCAAGGACAUCGUCCGGG GUGAGGAAACUCC CU UCAAGGACAUCGUCCGGG GUGAGGAAACUCC CU UCAAGGACAUCGUCCGGG GAGGCGAAACC CU CAACGACACACCGGG GAGGGAAACCC CU CAACGACACACCGGG GAGC	450	GUUCUUCU G GACUAUCA	2040	GGAGGAAACUCC CU	10528
ACURUCAA G GUAUGUUG 2042 CAACAUAC GAGGAAACUCC CU UCAAGGACAUCGUCCGGG UGGAAUTA UNAUUCCA G GAUCAUCA 2043 UGAUGAUC GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG UGGAAUTA CCAGCACC G GACCAUGC 2044 UUGAUGAU GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG GUGCUGG CCAGCACC G GACCAUGC 2045 UGCAUGGU GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG GGUGCUGG CAGCACCA G GACCAUGC 2047 AGAGGUU GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG GUGCUGG CUGCUCAA G GACCUCAA 2048 UAGAGGUU GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG GUGCUGG UGCUCAAG G AACCUCAA 2049 UUUCCGUC GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG GUAGGUU AAACCUAC G GACGAAA 2049 UUUCCGUC GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG GUAGGUU AAACCUAC G GACGAAAC 2050 GUUUCCGU GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG GUAGGUU AAACUACG GACGAAAC 2050 GUUUCCGU GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG GUAGGUU AACCUACG GACGAAAC 2051 GCAGAUUU GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG GUAGGUU AACCUACG GACGACAC GCAGAGGAACUCCCGGG GUAGGACAUCGUCCGGG GUAGGUU AACCUACGG GAGGAAACUCC CU UCAAGGACAUCGUCCGGG GUAGGAGAACUCCGGG CUAAGGACAUCGUCCGGG CUAAGGACAUCGUCCGGG CACCACC GGAGGAAACUCC CCACACCC GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG CACCACACC GGAGGAAACUCC CCACACCC GGAGGAAACC CU UCAAGGACAUCGGG CACC	451	UUCUUCUG G ACUAUCAA	2041		10529
UMAUUCCA G GAUCAUCA 2043 UGAUGAUC GGAGGAAACUCC CU UCAAGGACAUCGUCGGG UGAAUUCA AAUUCCAG G AUCAUGA 2044 UUGAUGAU GGAGGAAACUCC CU UCAAGGACAUCGUCGGG UGGAGUU CCAGCACC G ACCAUGC 2045 UGCAUGGU GGAGGAAACUCC CU UCAAGGACAUCGUCGGG GGUGGUG CCAGCACC G ACCAUGC 2046 UGCAUGGU GGAGGAAACUCC CU UCAAGGACAUCGUCGGG GGUGGUCG CCAGCACC G ACCAUGC 2047 AGAGGUUC GGAGGAAACUCC CU UCAAGGACAUCGUCGGG GGUGGUCG UGCUCAAG G AACCUCC 2049 UUUCCGU GGAGGAAACUCC CU UCAAGGACAUCGUCGGG GUUGGUUC UGCUCAAG G AACCUCC 2050 GUUUCCGU GGAGGAAACUCC CU UCAAGGACAUCGUCGGG GUUGGUU AACCUCAC G AAACUCC 2051 UUCCGUC GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG GUUCCGUA AACCUCAC G AAACUCC GCAGAAAGC GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG GUUCCGUA AUCAUCUU G GCUUUCG 2052 UGAAGGAAACUCC CU UCAAGGACAUCGUCCGGG CAUCAGUC<	460	ACUAUCAA G GUAUGUUG	2042		10530
AAUTOCCAG G AUCAUCAA 2044 UVGANGGAU GAGGAAACUCC CU UCAAGGACAUCGUCCGGG CUGGAAUU CCAGCACC G GACCAUGC 2045 GCAUGGUC GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG GGUGCUGG CCAGCACC G GACCAUGC 2046 UGCAUGGUC GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG GGUGCUGG CUGCUCAA G GAACCUCA 2047 AGAGGUU GGAGGAAACUC CU UCAAGGACAUCGUCCGGG UUGAGCA UGCUCAAG G GACGGAAA 2048 UNACAGGAAACUC CU UCAAGGACAUCGUCCGGG UUGAGCA AAACCUAC GACGGUAC GAGGGUU GGAGGAAACUC CU UCAAGGACAUCGUCCGGG UUGAGUU AAACCUAC GACGGAAA 2049 UUUCCGU GGAGGAAACUC CU UCAAGGACAUCGUCCGGG GUUGGUU AAACUACA GACGGUUCG GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG GUUGGUU AACUACA GACGGUUUCG GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG GUUGGUU AUCACGAC GAACCUCC GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG GUUCCGUA AUCACUAC GAACCUCC GGAAAGC GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG GUUCCGUA AUCAUCUC GGAAAGC GGGGAAACCC CU UCAAGGACAUCGUCCGGG GUUCCGGG GUUCCGGG GCCCCCCCC AUCAUCUC GGCCAAAGC GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG CAUAGGACAUCGUCCGGG AUCAUCUC	490	UAAUUCCA G GAUCAUCA	2043		10531
CCAGCACC G GACCAUGC GCAUGGU GGAGGAAACUCC CU VCAAGGACAUCGUGGG GGUGCUGG CAGCACCG G ACCAUGC 2046 UGCAUGGU GGAGGAAACUCC U VCAAGGACAUCGUCGGG GGUGCUGG CUGCUCAA G GAACCUCU 2047 AGAGGUU GGAGGAAACUCC U UCAAGGACAUCGUCCGGG UUGAGCA UGCUCAAG G GACGGAAA 2049 UUUCCGUC GGAGGAAACUCC U UAAAGGACUCCGGG UUGAGCA AAACCUAC G GACGGAAA 2050 GUUUCCGU GGAGGAAACUCC U UAAAGGACAUCGUCCGGG GUAGGUU AAACCUAC G GACGGAAA 2051 GUUUCCGU GGAGGAAACUCC U UAAAGGACAUCGUCCGGG GUAGGUU AAACCUAC G ACGGAAAC 2052 GCAGUUUC GGAGGAAACUCC U UCAAGGACAUCGUCCGGG GUAGGUU AACCUAC G AAACUGCA 2052 UGCAGUUU GGAGGAAACUCC U UCAAGGACAUCGUCCGGG GUAGGUU AUCAGGAC G AAACUGCA 2052 UGCAGUUU GGAGGAAACUCC U UCAAGGACAUCGGG GUAGGUU AUCAUCUU G GCUUUCG 2054 GCGAAAGC GGAGGAAACUCC U UCAAGGACAUCGGCGG GUAGGUU AUACCUAU G GGCUUUCG 2054 GCCACUC GGAGGAAACUC U UCAAGGACAUCGGCCGGG GUAGGUU AUCCUAUG G GAGGGAAACUC GGAGGGAAACUC CUCAACUC GGAGGGAAACC	491	AAUUCCAG G AUCAUCAA	2044		10532
CAGCACCG G ACCAUGCA 2046 UGCAUGGAAACUCC CU UCAAGGACAUCGGCG CGGUGCUG CUGCUCAAG G GAACCUCU 2047 AGAGGUUC GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG UUGAGCA UGCUCAAG G AACCUCUA 2049 UUUCCGUC GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG GUAGGUU AAACCUACG G ACGGAAA 2050 GUUUCCGU GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG GUAGGUU AACCUACG G ACGGAAA 2051 GCAGUUUC GAGGAAACUCC CU UCAAGGACAUCGUCCGGG GUAGGUU CUACGGAC G AACUGCA 2052 GCAGUUUC GAGGGAAACUCC CU UCAAGGACAUCGUCCGGG GUAGGUU UACGGAC G AAACUGCA 2053 GCAGUUUC GAGGGAAACUCC CU UCAAGGACAUCGUCCGGG GUAGGUU UACAUCUU G GCUUUCGC 2054 GCGAAAGC GAGGAAACUCCCCGGG GAGGAACUCCCCGGG CAGGAAACUCC CU UCAAGGACAUCGUCCGGG CAGAGGAAACUCC UACUCUU G GCCUUUCG 2054 GCGAAAGC GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG CAGAGGAAACUCC UACUCUAU G GGCUUCG GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG CAGAGGAAACUCC CU UCAAGGACAUCGUCCGGG CAGAGGAAACUCC CCCACUCC GCGAAAGC CCCACUCC GGCCCACUC GGCCCACUC GGCCCACUC GGCCCACUC	511	CCAGCACC G GACCAUGC	2045	GGAGGAAACUCC	10533
CUGCUCAA G GAACCUCU AGAGGUU GGAGGAAACUCC CU UCAAGGACAUCGUCGGG UUGAGCA UGCUCAAG G AACCUCUA 2048 UAGAGGUU GGAGGAAACUCC CU UCAAGGACAUCGUCGGG GUAGGUU AAACCUAC G GACGGAAA 2049 UUUCCGUC GGAGGAAACUCC CU UCAAGGACAUCGUCGGG GUAGGUU AACCUACG G ACGGAAA 2050 GUUUCCGU GGAGGAAACUCC CU UCAAGGACAUCGUCGGG GUAGGUU CUACGGAC G GAAACUGC 2051 GCAGUUUC GGAGGAAACUCC CU UCAAGGACAUCGUCGGG GUCCGUAG UACGGACG G AAACUGC 2052 UGCAGUUU GGAGGAAACUCC CU UCAAGGACAUCGUCGGG GUCCGUAG UCAUCUU G GCUUUCG 2053 CGAAAGCC GGAGGAAACUCC CU UCAAGGACAUCGUCGGG AAGAUGA UCAUCUU G GCUUUCGC 2054 GCGAAAGC GGAGGAAACUC CU UCAAGGACAUCGUCGGG AAGAUGA UCAUCUU G GCUUUCGC 2055 GCCCACUC GGAGGAAACUC CU UCAAGGACAUCGUCGGG AAGAUGA UACCUAUG G GCUUUCGC 2055 GCCCACUC GGAGGAAACUC CU UCAAGGACAUCGUCGGG AAGAUGA AUACCUAUG G GAUGGGC 2056 GCCCACUC GGAGGAAACUC CU UCAAGGACAUCGUCGGG CAUAGGUA ACCUAUGG G AGUGGGC 2056 GCCCACUC GGAGGAAACUC CU UCAAGGACAUCGUCGGG CAUAGGUA ACCUAUGG G AGUGGGC 2056 GCCCACUC GGAGGAAACUC CU UCAAGGACAUCGUCGGG CAUAGGUA ACCUAUGG G GAGGAAACUC CU UCAAGGACAUCGUCGGG CAUAGGACAUCGUCGGG CAUAGGACACCCCGGG CAUAGGACACCCGGG CAUAGGACACCCGGG CAUAGGACACCCGGG CAUAGGACACCCCGGG CAUAGGACACCCGG	512	G ACCAU	2046	GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG	10534
UGCUCAAG G AACCUCUA 2048 UAGAGGUU GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG GUAGGUUU AAACCUAC G ACGGAAAC 2059 UUUCCGUC GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG GUAGGUUU CUACGGAC G ACGGAAAC 2051 GCUUUCCGU GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG GUCCGUA UACGGAC G GAACUGC 2052 UGCAGUUU GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG GUCCGUA UACGGAC G GAACUGC 2053 CCAAAAGC GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG AAGAUGAU UCAUCUU G GCUUUCGC 2054 GCGAAAGC GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG AAGAUGA UCAUCUUG G GCUUUCGC 2055 CCCACUCC GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG AAGAUGA UACCUAUG G GCUUUCGC 2055 GCCACUCC GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG AUAGGUA UACCUAUG G GAGUGGGC 2056 GCCCACUC GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG CAUAGGUA AUGGAGG 2056 GCCCACUC GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG CAUAGGUA ACCUAUG G GAGGGAAACUCC CU UCAAGGACAUCGUCCGGG CAUAGGUA ACCUAUG G GCCUCACU GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG CAUAGGUA ACCUAUG G GACCCACU GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG CAUAGGUA ACCUAUG G GCCCACU GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG CAUAGGUA AUGGGAG G GCCCACU GGAGGAAACUC CU UCAAGGACAUCGUCCGGG CAUAGGUA ACUGAGGC GGAGGAAACUC CU UCAAGGACAUCGUCCGGG CAUAGGACCAUCCGGG CAUAGGACCAUCGGG CAUAGGACAUCGUCCGGG CAUAGGACACCAUCGGG CAUAGGACACCACUCGGG CAUAGG	544	G GAACCI	2047	GGAGGAAACUCC	10535
AAACCUACG G ACGGAAA 2049 UUUCCGUC GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG GUAGGUUU AACCUACG G ACGGAAAC 2051 GCUGUUUC GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG CGUAGGUU CUACGGAC G GAAACUGC 2051 GCCAGUUUC GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG GUCCGUAG AUCAUCUU G GCUUUUCGC 2053 CGAAAGCC GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG AAGAUGAU AUCAUCUUU G GCUUUUCGC 2055 CGCACUC GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG AAGAUGAU AUACCUAU G GGAGUGGG 2055 CCCACUC GGAGGAAACUC CU UCAAGGACAUCGUCCGGG AAGAUGAU AUACCUAU G GGAGUGGG 2055 CCCACUC GGAGGAAACUC CU UCAAGGACAUCGUCCGGG AUAGGUAU AUACCUAU G GAGUGGGC 2056 GCCCACUC GGAGGAAACUC CU UCAAGGACAUCGUCCGGG CAUAGGUA AUCCUAUG G AGUGGGCC 2057 GCCCACUC GGAGGAAACUC CU UCAAGGACAUCGUCCGGG CAUAGGUA ACCUAUG G GAGUGGGC 2058 CCCACUC GGAGGAAACUC CU UCAAGGACAUCGUCCGGG CAUAGGUA AUGGGAGU G GGCCUCAG CGAGGAAACUC CU UCAAGGACAUCGUCCGGG CAUAGGU AUGGGAGU G GCCUCAGU CGAGGGAAACUC CU UCAAGGACAUCGUCCGGG CAUAGGU AUGGGAGU G GCCUCAGU CGAGGGAAACUCC CU UCAAGGACAUCGUCCGGG CAUAGGU AUGGGAGU G GCCUCAGU CGAGGGAAACUCC CU UCAAGGACAUCGUCCGGG ACUCCCAU UUUCUCUU G GCCUCAGU CGAGGGAAACUCC CU UCAAGGACAUCGUCCGGG AACUCCCAA UUUCUCUU G GUUCGUAG CGAGGGAAACUCC CU UCAAGGACAUCGUCCGGG AACUCCCAA UUUCUCUU G GUUCGUAG CGAGGAAACUC CU UCAAGGACAUCGUCCGGG AACUCCCAA CUUUCAGU G GUUCGUAGC GGAGGAAACUC CU UCAAGGACAUCGUCCGGG AACUCCCAA CUUUCAGU G GUUCGUAGC GGAGGAAACUC CU UCAAGGACAUCGUCCGGG ACUCCCAA CUUUCAGU G GUUCGUAGC GGAGGAAACUC CU UCAAGGACAUCGUCCGGG ACUCCCAA CUUUCAGAGACACCCCCCCCCCCCCCCCCCC	545	,	2048	GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG	10536
AACCUACG G ACGGARAC GUUUCCGU GGAGGAAACUCC CU UCAAGGACAUCGUCGGG GCAGGUU CUACGGAC G GAAACUGC 2051 GCAGUUUC GGAGGAAACUCC CU UCAAGGACAUCGUCGGG GUCCGUAG UACGGACG AAACUGCA 2052 UGCAGUUU GGAGGAAACUCC CU UCAAGGACAUCGUCGGG CGUCCGGA AUCAUCUU G GCUUUCG 2054 GCGAAAGC GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG CAAGAUGA AUCAUCUU G GCUUUCG 2055 CCCACUCC GAGGGAAACUCC CU UCAAGGACAUCGUCCGGG CAAGAUGA AUACCUAUG G GAGUGGGC 2055 CCCACUCC GAGGGAAACUCC CU UCAAGGACAUCGUCCGGG CAUAGGUA ACCUAUG G GAGUGGC CU UCAAGGACAUCGUCCGG CAUAGGUA CAUAGGUA CAUAGGACAUCGUCCGG CAUAGGUA ACCUAUG G AGUGGGC CU UCAAGGACAUCGUCCGG CAUAGGACAUCGUCCGG CAUAGGACAUCCCGG CAUAGGACAUCCGGG	585	G GACGG	2049	GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG	10537
CUACGGAC G GAACUGC 2051 GCAGUUUC GGAGGAACUCC CU UCAAGGACUCCGGG GUCCGUAG UACGGACG G AAACUGCA 2052 UGCAGUUU GGAGGAAACUCC CU UCAAGGACUCGUCGGG CGUCCGUA AUCAUCUU G GGCUUUCG 2053 CGAAAGC GGAGGAAACUC CU UCAAGGACAUCGUCCGGG AAGAUGA UCAUCUUG G GCUUUCG 2054 GCGAAAGC GGAGGAAACUC CU UCAAGGACAUCGUCCGGG AAGAUGA AUACCUAU G GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG AUAGGUA AUAGGAAACUC CU UCAAGGACAUCGUCCGG CAUAGGUA AUACCUAUG G AGUGGGC 2056 GCCCACUC GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG CAUAGGUA ACUAGGGC 2057 GGCCCACUC GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG CAUAGGUA AUGGGAGU GGCCCACUC GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG ACUCCCAU ACUGAGGC GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG ACUCCCAU AUGGGAGU GGCCCACUC GGAGGGAAACUCC CU UCAAGGACAUCGUCCGGG AAGAGAAACUCC CUGAGGGAAACUCC CU UCAAGGACAUCGUCCGGG AAGAGAAACUCC AUGCUAGU GCCUCAGU GGAGGGAAACUCC CU UCAAGGACAUCGUCCGGG AAGAGAAACUCC AUGCUAGU GCCUCAGU GGAGGCCACUC GGAGGGAAACUCC CU UCAAGGACAUCGUCCGGG AAGAGAAACUCCCAU AUUUCUCUU GCCUCAGU GGAGGGAAACUCCCCAU CUAAAGGACAUCGUCCGGG AAGAGAAACUCCCAU AUUUCUCUU GCUCAGUC GGAGGGAAACUCCCCAU CUAAAGGACAUCGUCCGGG AAGAGAAACUCCCAU AUUCGUAGA<	586	G ACGGA	2050	GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG	10538
UACGGAGUG G AAACUGGA 2052 UGCAGAUUU GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG AAGAUGAU AUCAUCUU G GCUUUCG 2053 CGAAAGC GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG AAGAUGAU AUACCUAU G GGCUUUCGC 2054 GCGAAAGC GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG CAAGAUGA AUACCUAU G GAGUGGGC 2055 CCCACUC GGAGGAAACUCC CU UCAAGGACAUCGUCCGG CAUAGGUA ACUAUGG AAGUGGGC CUGAGGAAACUCC CU UCAAGGACAUCGUCCGG CAUAGGUA ACUAUGG ACUAGGGC CUGAGGAAACUCC CU UCAAGGACAUCGUCCGG CAUAGGUA ACUAGGACUCAGG 2057 GGCCCACU GGAGGAAACUCC CU UCAAGGACAUCGUCCGG CAUAGGU AUGGGAGU G GCCUCAGG GGAGGGAAACUCC CU UCAAGGACAUCGUCCGG CAUAGGU CUGAGGAAACUCC CU UCAAGGACAUCGUCCGG CAUAGGU AUGCGAGU G GCCUCAGG GGAGGGAAACUCC CU UCAAGGACAUCGUCCGG CAUACCCAU CUGAGGAAACUCC CU UCAAGGACAUCGUCCGG CAUACCCAU UUUUCUCUU G GCCUCAGU GGAGGGAAACUCC CU UCAAGGACAUCGUCCGG CAUACC	589	ט	2051	GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG	10539
AUCAUCUU G GGCUUUCG 2053 CGAAAGCC GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG AAGAUGA UCAUCUUG G GCUUUCGC 2054 GCGAAAGC GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG CAAGAUGA AUACCUAU G GGAGUGGG 2055 CCCACUC GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG AUAGGUA UACCUAUGG G AGUGGGC 2056 GCCCACUC GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG CAUAGGU ACCUAUGG G AGUGGGC 2057 GGCCCACU GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG CAUAGGU AUGGAAGU G GGCCUCAGU 2059 ACUGAGGC GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG CACUCCCA UUUCUCUU GCCUCAGU GAGGGAAAACUCC CU UCAAGGACAUCGUCCGG CACUCCCA UUUCUCUU GCCUCAGU GAGGGAAAACUCC CU UCAAGGACAUCGUCCGG CACUCCCA UUUUCUCUU GCUCAGU GAGGGAAAACUCC CU UCAAGGACAUCGUCCGG ACUCCCA UUUUCUCUU GCUCAGU GGAGGAAAACUCC CU UCAAGGACAUCGUCCGGG ACUCCCA	290	G AAACU	2052	GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG	10540
UCAUCUUG G GEUUUUGGC 2054 GCGAAAGC GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG CAAGAUGA AUACCUAU G GGAGUGGG 2055 CCCACUCC GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG AUAGGUA UACCUAUG G GAGUGGGC 2056 GCCCACUC GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG CAUAGGUA ACUANUGG G AGUGGGC 2057 GGCCCACU GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG CAUAGGU AUGGGAGU G GCCCACU GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG CAUACGU UCAAGGACAUCGUCCGGG CAUACGU UUUCUCUU G GCCUCAGU AACUGAGGC GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG CACUCCCA UUUUCUCUU G GCUCAGU AACUGAGC GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG AAGAGAAA UGUUCAGU G GCUCAGU CUACGAAAC GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG ACUCACAA	623	G GGCUU	2053	GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG	10541
AUACCUAU G GGAGUGGG 2055 CCCACUCC GGAGGAAACUCC CU UCAAGGACAUCGUCGGG AUAGGUAU UACCUAUG G GAGUGGGC 2056 GCCCACUC GGAGGAAACUCC CU UCAAGGACAUCGUCGGG CAUAGGU ACCUAUGG G AGUGGAGU GGCCCACU GGAGGAAACUCC CU UCAAGGACAUCGUCGGG CCAUAGGU AUGGGAGU G GGCCUCAG CUGAGGCC GGAGGAAACUCC CU UCAAGGACAUCGUCGGG ACUCCCAU UGGGAGU G GCCUCAGU ACUGAGGC GGAGGAAACUCC CU UCAAGGACAUCGUCGGG ACUCCCAU UUUCUCUU G GCCUCAGU AACUGAGG GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG AAGAGAAA UUUCUCAU G GCUCAGU AACUGAGC GGAGGAAACUCC CU UCAAGGACAUCGUCGGG AAGAGAAA UGUUCAGU G GUUCGUAG CUACGAAC GGAGGAAACUCC CU UCAAGGACAUCGUCGGG ACUGAACA	624	Q	2054	GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG	10542
UACCUANGG G AGUGGGCC 2056 GCCCACUC GGAGGAAACUCC CU UCAAGGACAUCGUCGGG CAUAGGUA ACCUANGG G AGUGGCCC 2057 GGCCCACU GGAGGAAACUCC CU UCAAGGACAUCGUCGGG CCAUAGGU AUGGGAGU G GGCCUCAG 2058 CUGAGGC GGAGGAAACUCC CU UCAAGGACAUCGUCGGG ACUCCCAU UGGGAGUG G GCCUCAGU ACUGAGGC GGAGGAAACUCC CU UCAAGGACAUCGUCGGG CACUCCCA UUUCUCUU G GCCUCAGU AACUGAGGC GGAGGAAACUCC CU UCAAGGACAUCGUCGGG AAGAGAAA UGUUCAGU G GUUCGUAG CUACGAAAC GGAGGAAACUCC CU UCAAGGACAUCGUCGGG ACUGAACA	644	G	2055	GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG	10543
ACCUAUGG G AGUGGGCC 2057 GGCCCACU GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG CCAUAGGU AUGGGAGU G GGCCUCAG 2058 CUGAGGCC GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG ACUCCCAU CUGGGAGUG G GCCUCAGU 2059 ACUGAGGC GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG CACUCCCA UUUCUCUUU G GCCUCAGU 2060 AACUGAGGC GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG AAGAGAAA CUCCUCUU G GCUCAGUU G GCUCAGAACA CU CCAAGGACAUCGUCCGGG ACUGAAACA CU UCAAGGACAUCGUCCGGG ACUGAACA	645	ტ	2056	GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG	10544
AUGGGAGUS G GGCCUCAGO 2058 CUGAGGCC GGAGGAAACUCC CU UCAAGGACAUCGUCGGG ACUCCAU UGGGAGUS G GCCUCAGU 2059 ACUGAGGC GGAGGAAACUCC CU UCAAGGACAUCGUCGGG CACUCCCA UUUCUCUU G GCUCAGUU 2060 AACUGAGC GGAGGAAACUCC CU UCAAGGACAUCGUCGGG AAGAGAAAAA UGUUCAGU G GUUCGUAG CUACGAAAC GGAGGAAACUCC CU UCAAGGACAUCGUCGGG ACUGAAACA	646	ອ	2057	GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG	10545
UGGGAGUG G GCCUCAGU 2059 ACUGAGGC GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG CACUCCCA UUUCUCUU G GCUCAGUU 2060 AACUGAGC GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG AAGAGAA UGUUCAGU G GUUCGUAG 2061 CUACGAAC GGAGGAAACUCC CU UCAAGGACAUCGGG ACUGAACA	650	ט	2058	GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG	10546
UUUCUCUU G GCUCAGUU 2060 AACUGAGC GGAGGAAACUCC CU UCAAGGACAUCGUCGGG AAGAGAAA UGUUCAGU G GUUCGUAG 2061 CUACGAAC GGAGGAAACUCC CU UCAAGGACAUCGUCGGG ACUGAACA	651	ប	2059	GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG	10547
UGUUCAGU G GUUCGUAG 2061 CUACGAAC GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG ACUGAACA	671	ט	2060	GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG	10548
	701	ט	2061	GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG	10549

402	GEUUCGUA G GGCUUUCC	2062	GGAAAGCC GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG UACGAACC	10550
710	GUUCGUAG G GCUUUCCC	2063	GGGAAAGC GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG CUACGAAC	10551
728	CACUGUCU G GCUUUCAG	2064	CUGAAAGC GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG AGACAGUG	10552
743	AGUUAUAU G GAUGAUGU	2065	ACAUCAUC GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG AUAUAACU	10553
744	GUUAUAUG G AUGAUGUG	2066	CACAUCAU GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG CAUAUAAC	10554
752	GAUGAUGU G GUUUUGGG	2067	CCCAAAAC GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG ACAUCAUC	10555
758	GUGGUUUU G GGGGCCAA	2068	UUGGCCCC GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG AAAACCAC	10556
759	uggunung g gggccaag	2069	CUUGGCCC GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG CAAAACCA	10557
160	GGUUUUGG G GGCCAAGU	2070	ACUUGGCC GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG CCAAAACC	10558
761	GUUUUGGG G GCCAAGUC	2071	GACUUGGC GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG CCCAAAAC	10559
824	UUGUCUUU G GGUAUACA	2072	UGUAUACC GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG AAAGACAA	10560
825	ивисипив в вимичеми	2073	AUGUAUAC GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG CAAAGACA	10561
856	AACAAAAA G AUGGGGAU	2074	AUCCCCAU GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG UUUUUGUU	10562
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860	AAAAGAUG G GGAUAUUC	2076	GAAUAUCC GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG CAUCUUUU	10564
861	AAAGAUGG G GAUAUUCC	2077	GGAAUAUC GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG CCAUCUUU	10565
862	AAGAUGGG G AUAUUCCC	2078	GGGAAUAU GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG CCCAUCUU	10566
881	AACUUCAU G GGAUAUGU	2079	ACAUAUCC GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG AUGAAGUU	10567
882	l i	2080	UACAUAUC GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG CAUGAAGU	10568
883	ຽ	2081	UUACAUAU GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG CCAUGAAG	10569
894	ß	2082	CCAACUCC GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG AAUUACAU	10570
895	ტ	2083	CCCAACUC GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG CAAUUACA	10571
896	G	2084	CCCCAACU GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG CCAAUUAC	10572
901	ט	2085	AUGUGCCC GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG AACUCCCA	10573
902	веського в весьсят	2086	AAUGUGCC GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG CAACUCCC	10574
903	೮	2087	CAAUGUGC GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG CCAACUCC	10575
917		2088		10576
918	ß	2089	AAUAUGUU GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG CUGUGGCA	10577
952	G GAAACU	2090	GAAGUUUC GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG UAAAACAC	10578
953	២	2091	GGAAGUUU GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG CUAAAACA	10579
970	b	2092	CAAUAGGC GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG UGUUUACA	10580
982		2093	AUACUUUC GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG AAUCAAUA	10581
983		2094		10582
1004	Ø	2095	GGAGGAAACUCC	10583
1005	ט	2096	GGAGGAAACUCC	10584
1013	0	2097	GGAGGAAACUCC	10585
1014	GUCUNNUG G GGUNUGCC	2098	GGCAAACC GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG CAAAAGAC	10586

1015	ucumuse e emmecce	2099	CGGCAAAC GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG CCAAAAGA	10587
1041	CGCAAUGU G GAUAUUCU	2100	AGAAUAUC GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG ACAUUGCG	10588
1042	GCAAUGUG G AUAUUCUG	2101	CAGAAUAU GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG CACAUUGC	10589
1088	GCAAACA G GCUUUUAC	2102	GUAAAAGC GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG UGUUUUGC	10590
1115	ACUUACAA G GCCUUUCU	2103	AGAAAGGC GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG UUGUAAGU	10591
1159	cenuecuc e ecaaceec	2104	GCCGUUGC GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG GAGCAACG	10592
1165	nceecayc e eccneenc	2105	GACCAGGC GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG GUUGCCGA	10593
1170	AACGGCCU G GUCUAUGC	2106	GCAUAGAC GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG AGGCCGUU	10594
1206	CCCCCACU e GUUGGGGC	2107	GCCCCAAC GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG AGUGGGGG	10595
1210	CACUGGUU G GGGCUUGG	2108	CCAAGCCC GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG AACCAGUG	10596
1211	ACUGGUUG G GGCUUGGC	2109	GCCAAGCC GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG CAACCAGU	10597
1212	coeennee e econeecc	2110	GGCCAAGC GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG CCAACCAG	10598
1217	UGGGGCUU G GCCAUAGG	2111	CCUAUGGC GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG AAGCCCCA	10599
1224	UGGCCAUA G GCCAUCAG	2112	CUGAUGGC GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG UAUGGCCA	10600
1242	ecaueceu e caaccuuu	2113	AAAGGUUC GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG ACGCAUGC	10901
1243	CAUGCGUG G AACCUUUG	2114	CAAAGGUU GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG CACGCAUG	10602
1277	CAUACCGC G GAACUCCU	2115	AGGAGUUC GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG GCGGUAUG	10603
1278	AUACCGCG G AACUCCUA	2116	UAGGAGUU GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG CGCGGUAU	10604
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1314		2118	UUUUGCCC GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG AGACCUGC	10606
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1329	AACUCAUC G GGACUGAC	2121	GUCAGUCC GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG GAUGAGUU	10609
1330	ACUCAUCG G GACUGACA	2122	UGUCAGUC GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG CGAUGAGU	10610
1331		2123	UDGUCAGU GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG CCGAUGAG	10611
1378	ro l	2124	CUAGCAGC GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG AUGGAAAU	10612
1386	ט	2125	AGCACAGC GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG UAGCAGCC	10613
1402	ט	2126	GGAGGAAACUCC CU	10614
1403	ט	2127		10615
1413	O	2128	GGACGUCC GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG GCGUAGGA	10616
1414	G GACGUC	2129	D)	10617
1415	ט	2130	AAGGACGU GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG CCGCGUAG	10618
1439	უ	2131	GGAGGAAACUCC	10619
1454	O	2132	GGGUCGUC GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG GCGGGAUU	10620
1455		2133	GGGGUCGU GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG CGCGGGAU	10621
1468		2134	GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG	10622
1469	cccnccce e eeccecnn	2135	AAGCGGCC GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG CGGGAGGG	10623

1470	concede e eccenne	2136	CAAGCGGC GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG CCGGGAGG	10624
1478		2137	GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG	10625
1479	GCCGCUUG G GGCUCUAC	2138	GGAGGAAACUCC	10626
1480	ccecuuee e ecucuacc	2139	GOUNGAGE GENGGAAACUCE CU UCAAGGACAUCGUCCGGG CCAAGCGG	10627
1523	CCGUCCAC G GGGCGCAC	2140	GGAGGAAACUCC	10628
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1525	GUCCACGG G GCGCACCU	2142	AGGUGCGC GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG CCGUGGAC	10630
1544	CUUUACGC G GACUCCCC	2143	GGGGAGUC GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG GCGUAAAG	10631
1545	UNUACGCG G ACUCCCCG	2144	CGGGGAGU GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG CGCGUAAA	10632
1574	CAUCUGCC G GACCGUGU	2145	ACACGGUC GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG GGCAGAUG	10633
1575	AUCUGCCG G ACCGUGUG	2146	CACACGGU GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG CGGCAGAU	10634
1612	CGUCGCAU G GAGACCAC	2147	GUGGUCUC GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG AUGCGACG	10635
1613	GUCGCAUG G AGACCACC	2148	GGUGGUCU GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG CAUGCGAC	10636
1615	CGCAUGGA G ACCACCGU	2149	ACGEUGEU GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG UCCAUGCG	10637
1635	CGCCCACA G GAACCUGC	2150	GCAGGUUC GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG UGUGGGCG	10638
1636	GCCCACAG G AACCUGCC	2151	GGCAGGUU GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG CUGUGGGC	10639
1648	CUGCCCAA G GUCUUGCA	2152	UGCAAGAC GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG UUGGGCAG	10640
1660	UUGCAUAA G AGGACUCU	2153	AGAGUCCU GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG UJAUGCAA	10641
1662	GCAUAAGA G GACUCUUG	2154	CAAGAGUC GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG UCUUAUGC	10642
1663	CAUAAGAG G ACUCUUGG	2155	CCAAGAGU GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG CUCUUAUG	10643
1670	GGACUCUU G GACUUUCA	2156	UGAAAGUC GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG AAGAGUCC	10644
1671	GACUCUUG G ACUUUCAG	2157	CUGAAAGU GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG CAAGAGUC	10645
1702	GACCUUGA G GCAUACUU	2158	AAGUAUGC GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG UCAAGGUC	10646
1715	ACUUCAAA G ACUGUGUG	2159	CACACAGU GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG UUUGAAGU	10647
1734	UAAUGAGU G GGAGGAGU	2160	ACUCCUCC GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG ACUCAUUA	10648
1735	AAUGAGUG G GAGGAGUU	2161	AACUCCUC GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG CACUCAUU	10649
1736	AUGAGUGG G AGGAGUUG	2162	CAACUCCU GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG CCACUCAU	10650
1738	GAGUGGGA G GAGUUGGG	2163	CCCAACUC GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG UCCCACUC	10651
1739	AGUGGGAG G AGUUGGGG	2164	CCCCAACU GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG CUCCCACU	10652
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1747		2168	ACCUCCUC GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG CCCAACUC	10656
1748		2169	AACCUCCU GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG CCCCAACU	10657
1750		2170	CUAACCUC GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG UCCCCCAA	10658
1221	UGGGGGAG G AGGUUAGG	2171		10659
1753	GGGGAGGA G GUUAGGUU	2172	AACCUAAC GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG UCCUCCCC	10660

1765		21/3	ここのつかなこ みきゅうかっしん つこかけられてもつころうしゅうしゅう	10661
1778	AGGUUAAA G GUCUUUGU	2174	ACAAAGAC GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG UUUAACCU	10662
	UNGUACUA G GAGGCUGU	2175	ACAGCCUC GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG UAGUACAA	10663
1779	UGUACUAG G AGGCUGUA	2176	UACAGCCU GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG CUAGUACA	10664
1781	UACUAGGA G GCUGUAGG	2177	GGAGGAAACUCC	10665
1788	AGGCUGUA G GCAUAAAU	2178	AUTUAUGC GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG UACAGCCU	10666
1798	CAUAAAUU G GUGUGUUC	2179	GAACACAC GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG AAUUUAUG	10667
1888	veueccuu e eeueecuu	2180	AAGCCACC GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG AAGGCACA	10668
1889	eveccivie e eveectivi	2181	AAAGCCAC GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG CAAGGCAC	10669
1892	ccuuegen a ecunicae	2182	CCCAAAGC GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG ACCCAAGG	10670
1898	GUGGCUUU G GGGCAUGG	2183	CCAUGCCC GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG AAAGCCAC	10671
1899	udecunue e eccaudea	2184	UCCAUGCC GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG CAAAGCCA	10672
1900	GECUUUGE G GCAUGGAC	2185	GUCCAUGC GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG CCAAAGCC	10673
1905	UGGGGCAU G GACAUUGA	2186	UCAAUGUC GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG AUGCCCCA	10674
1906	GGGGCAUG G ACAUUGAC	2187	GUCAAUGU GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG CAUGCCCC	10675
1924	CGUAUAAA G AAUUUGGA	2188	UCCAAAUU GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG UUUAUACG	10676
1930	AAGAAUUU G GAGCUUCU	2189	AGAAGCUC GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG AAAUUCUU	10677
1931	AGAAUUUG G AGCUUCUG	2190	CAGAAGCU GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG CAAAUUCU	10678
1941		2191	AGUAACUC GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG ACAGAAGC	10679
1942		2192	GAGUAACU GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG CACAGAAG	10680
1987	ტ	2193	GAGGAGAU GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG UCGAAUAG	10681
2018		2194	AGGCCCCC GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG GAUACAGA	10682
2019	ටටවවවට ව	2195	AAGGCCCC GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG CGAUACAG	10683
2020		2196	D)	10684
2021		2197		10685
2022		2198	UCUAAGGC GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG CCCCGAUA	10686
2029	G AGUCUC	2199	GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG	10687
2037		2200	GGAGGAAACUCC	10688
2038		2201	ACAAUGUU GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG CGGAGACU	10689
2061		2202	GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG	10690
2069	GGCACUCA G GCAAGCUA	2203	GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG	10691
2087		2204	GGAGGAAACUCC CU	10692
2088		2205	GGAGGAAACUCC CU	10693
2089	uevervee e evereve	2206	GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG	10694
2114	AGCCACCU G GGUGGGAA	2207	GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG	10695
2115	G GUGGGA	2208	GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG	10696
2118	ACCUGGGU G GGAAGUAA	2209	UNACTUCE GGAGGAAACUCE EU UCAAGGACAUCGUECGGG AECEAGGU	10697

2119	CCUGGGUG G GAAGUAAU	2210	AUUACUUC GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG CACCCAGG	10698
2120	CUGGGUGG G AAGUAAUU	2211	AAUUACUU GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG CCACCCAG	10699
2130	AGUAAUUU G GAAGAUCC	2212	GGAUCUUC GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG AAAUUACU	10700
2131	GUAAUUUG G AAGAUCCA	2213	UGGAUCUU GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG CAAAUUAC	10701
2134	AUUUGGAA G AUCCAGCA	2214	UGCUGGAU GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG UUCCAAAU	10702
2147	AGCAUCCA G GGAAUUAG	2215	CUAAUUCC GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG UGGAUGCU	10703
2148	GCAUCCAG G GAAUUAGU	2216	ACUAAUUC GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG CUGGAUGC	10704
2149	CAUCCAGG G AAUUAGUA	2217	UACUAAUU GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG CCUGGAUG	10705
2181	впимаими в вессимам	2218	UUJAGGCC GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG AUAUUAAC	10706
2182	UUAAUAUG G GCCUAAAA	2219	UUUUAGGC GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG CAUAUUAA	10707
2195	AAAAAUCA G ACAACUAU	2220	AUAGUUGU GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG UGAUUUUU	10708
2207	ACUAUUGU G GUUUCACA	2221	UGUGAAAC GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG ACAAUAGU	10709
2233	UNACUUUU G GGCGAGAA	2222	UUCUCGCC GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG AAAAGUAA	10710
2234	UACUUUUG G GCGAGAAA	2223	UUUCUCGC GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG CAAAAGUA	10711
2239	UUGGGCGA G AAACUGUU	2224	AACAGUUU GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG UCGCCCAA	10712
2259	GAAUAUUU G GUGUCUUU	2225	AAAGACAC GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG AAAUAUUC	10713
2269	UGUCUUUU G GAGUGUGG	2226	CCACACUC GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG AAAAGACA	10714
2270	GUCUUTUG G AGUGUGGA	2227	UCCACACU GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG CAAAAGAC	10715
2276	UGGAGUGU G GAUUCGCA	2228	UGCGAAUC GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG ACACUCCA	10716
2277	GGAGUGUG G AUUCGCAC	2229	GUGCGAAU GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG CACACUCC	10717
2300	UGCAUAUA G ACCACCAA	2230	UUGGUGGU GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG UAUAUGCA	10718
2334	ACACUUCC G GAAACUAC	2231	GUAGUUUC GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG GGAAGUGU	10719
2335	CACUUCCG G AAACUACU	2232	AGUAGUUU GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG CGGAAGUG	10720
2351		2233	CUCUUCGU GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG UAACAACA	10721
2357	Q	2234	ACCUGCCU GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG UUCGUCUA	10722
2359	೮	2235	GGACCUGC GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG UCUUCGUC	10723
2363		2236	UAGGGGAC GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG UGCCUCUU	10724
2372		2237	UUCUUCUU GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG UAGGGGAC	10725
2375	G AAGAAC	2238	GAGUUCUU GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG UUCUAGGG	10726
2378	- 1	2239	GGAGGAAACUCC CU	10727
2396	Ŋ	2240	ACCUUCGU GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG UGCGAGGC	10728
2402		2241	AUUGAGAC GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG UUCGUCUG	10729
2423		2242	GAGAUCUU GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG UGCGACGC	10730
2426	ರ	2243		10731
2438	ტ	2244	GGAGGAAACUCC CU	10732
2439		2245	GGAGGAAACUCC	10733
2440	AAUCUCGG G AAUCUCAA	2246	UUGAGAUU GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG CCGAGAUU	10734

2463	UAUUCCUU G GACACAUA	2247	UAUGUGUC GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG AAGGAAUA	10735
2464	AUUCCUUG G ACACAUAA	2248	UNAUGUGU GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG CAAGGAAU	10736
2473	ACACAUAA G GUGGGAAA	2249	UUUCCCAC GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG UUAUGUGU	10737
2476	CAUAAGGU G GGAAACUU	2250	AAGUUUCC GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG ACCUUAUG	10738
2477	AUNAGGUG G GANACUUU	2251	AAAGUUUC GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG CACCUUAU	10739
2478	UNAGGUGG G AAACUUUA	2252	UAAAGUUU GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG CCACCUUA	10740
2488	AACUUUAC G GGGCUUUA	2253	UNAAGCCC GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG GUAAAGUU	10741
2489	ACUUUACG G GGCUUUAU	2254	AUPAPAGCC GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG CGUAAAGU	10742
2490	CUUUACGG G GCUUUAUU	2255	ANUADAGC GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG CCGUAAAG	10743
2506	UCUUCUAC G GUACCUUG	2256	CAAGGUAC GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG GUAGAAGA	10744
2529	UCCUAAAU G GCAAACUC	2257	GAGUUUGC GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG AUUUAGGA	10745
2563	CAUTUGCA G GAGGACAU	2258	AUGUCCUC GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG UGCAAAUG	10746
2564	AUTUGCAG G AGGACAUU	2259	AAUGUCCU GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG CUGCAAAU	10747
2566	UUGCAGGA G GACAUUGU	2260	ACAAUGUC GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG UCCUGCAA	10748
2567	UGCAGGAG G ACAUUGUU	2261	AACAAUGU GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG CUCCUGCA	10749
2580	UGUUGAUA G AUGUAAGC	2262	GCUUACAU GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG UAUCAACA	10750
2596	CAAUTUGU G GGGCCCCU	2263	AGGGGCCC GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG ACAAAUUG	10751
2597	AAUUUGUG G GGCCCCUU	2264	AAGGGGCC GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG CACAAAUU	10752
2598	AUUUGUGG G GCCCCUUA	2265	UAAGGGGC GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG CCACAAAU	10753
2622	UGAAAACA G GAGACUUA	2266	UAAGUCUC GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG UGUUUUCA	10754
2623	GAAAACAG G AGACUUAA	2267	UDAAGUCU GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG CUGUUUUC	10755
2625	AAACAGGA G ACUUAAAU	2268	AUJUNAGU GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG UCCUGUUU	10756
2649	GCCUGCUA G GUUUUAUC	2269	GAUAAAAC GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG UAGCAGGC	10757
2684	UGCCCUUA G AUAAAGGG	2270	CCCUUUAU GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG UAAGGGCA	10758
2690	UAGAUAAA G GGAUCAAA	2271	UUUGAUCC GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG UUUAUCUA	10759
2691	AGAUAAAG G GAUCAAAC	2272	GUJUGAUC GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG CUJUAUCU	10760
2692	GAUAAAGG G AUCAAACC	2273	GEUJUGAU GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG CCUJUAUC	10761
2711	AUUAUCCA G AGUAUGUA	2274	UACAUACU GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG UGGAUAAU	10762
2737	UACUUCCA G ACGCGACA	2275	UGUCGCGU GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG UGGAAGUA	10763
2763		2276	CCGCCUUC GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG AAAGAGUG	10764
2764	ACUCUUUG G AAGGCGGG	2277	CCCGCCUU GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG CAAAGAGU	10765
2767	ტ	2278	AUCCCCGC GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG UUCCAAAG	10766
2770	ტ	2279	AAGAUCCC GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG GCCUUCCA	10767
2771	ប	2280	UAAGAUCC GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG CGCCUUCC	10768
2772		2281	AUPAGAUC GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG CCGCCUUC	10769
2773	AAGGCGGG G AUCUUAUA	2282	GGAGGAAACUCC CU	10770
2787	AUAUAAAA G AGAGUCCA	2283	UGGACUCU GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG UUUUAUAU	10771

2789	AUAAAAGA G AGUCCACA	2284	UGUGGACU GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG UCUUUUAU	10772
2816	CAUJUUGC G GGUCACCA	2285	UGGUGACC GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG GCAAAAUG	10773
2817	AUUUUGCG G GUCACCAU	2286	AUGGUGAC GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG CGCAAAAU	10774
2832	AUAUUCUU G GGAACAAG	2287	CUUGUUCC GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG AAGAAUAU	10775
2833	UAUUCUUG G GAACAAGA	2288	UCUUGUUC GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG CAAGAAUA	10776
2834	AUUCUUGG G AACAAGAU	2289	AUCUUGUU GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG CCAAGAAU	10777
2840	GGGAACAA G AUCUA	2290	CUGUAGAU GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG UUGUUCCC	10778
2852		2291	CAACCUCC GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG AUGCUGUA	10779
2853	ACAGCAUG G GAGGUUGG	2292	CCAACCUC GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG CAUGCUGU	10780
2854	CAGCAUGG G AGGUUGGU	2293	ACCAACCU GGAGGAAACUCC CU UCAAGGACAUCGUCGGG CCAUGCUG	10781
2856	GCAUGGGA G GUUGGUCU	2294	AGACCAAC GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG UCCCAUGC	10782
2860	eggagguu g gucuucca	2295	UGGAAGAC GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG AACCUCCC	10783
2880	CUCGAAAA G GCAUGGGG	2296	CCCCAUGC GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG UUUUCGAG	10784
2885	AAAGGCAU G GGGACAAA	2297	UUUGUCCC GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG AUGCCUUU	10785
2886	AAGGCAUG G GGACAAAU	2298	AUTUGUCC GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG CAUGCCUU	10786
2887	AGGCAUGG G GACAAAUC	2299	GAUTUGUC GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG CCAUGCCU	10787
2888		2300	AGAUUUGU GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG CCCAUGCC	10788
2915	AAUCCCCU G GGAUUCUU	2301	AAGAAUCC GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG AGGGGAUU	10789
2916	ღ	2302	GAAGAAUC GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG CAGGGGAU	10790
2917	ט	2303	GGAAGAAU GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG CCAGGGGA	10791
2939	υ	2304	GGAGGAAACUCC CU	10792
2940	ი	2305	GGAGGAACUCC CU	10793
2973	G AUUGG	2306	GUCCCAAU GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG UGGAUUUA	10794
2977	G	2307	UGAGGUCC GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG AAUCUGGA	10795
2978	G GACCU	2308	GGAGGAAACUCC CU	10796
2979	ซ	2309	GGAGGAAACUCC	10797
2996	G GACAA(2310	GGAGGAAACUCC	10798
2997	O	2311	1	10799
3004	ט	2312	1 1	10800
3008	ט	2313	UUGGCGUC GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG GGCCAGUU	10801
3009	Ø	2314		10802
3020	ß	2315	ACUCCCAC GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG UUGUUGGC	10803
3023	Ø	2316	GGAGGAAACUCC CU	10804
3024	ъ	2317		10805
3025		2318		10806
3029	Ö	2319	GGAGGAAACUCC CU	10807
3030	UGGGAGUG G GAGCAUUC	2320	GAAUGCUC GGAGGAACUCC CU UCAAGGACAUCGUCCGGG CACUCCCA	10808

3031	GGGAGUGG G AGCAUUCG	2321	CGAAUGCU GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG CCACUCCC	10809
3039	GAGCAUUC G GGCCAGGG	2322	CCCUGGCC GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG GAAUGCUC	10810
3040	AGCAUUCG G GCCAGGGU	2323	ACCCUGGC GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG CGAAUGCU	10811
3045	UCGGGCCA G GGUUCACC	2324	GEUGAACC GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG UGGCCCGA	10812
3046	CGGGCCAG G GUUCACCC	2325	GGGUGAAC GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG CUGGCCCG	10813
3063	CUCCCCAU G GGGGACUG	2326	CAGUCCCC GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG AUGGGGAG	10814
3064	UCCCCAUG G GGGACUGU	2327	ACAGUCCC GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG CAUGGGGA	10815
3065	ccccauge e geacueuu	2328	AACAGUCC GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG CCAUGGGG	10816
3066	cccauges s sacueuus	2329	CAACAGUC GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG CCCAUGGG	10817
3067	ccaugggg g acuguugg	2330	CCAACAGU GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG CCCCAUGG	10818
3074	GGACUGUU G GGGUGGAG	2331	CUCCACCC GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG AACAGUCC	10819
3075	GACUGUUG G GGUGGAGC	2332	GCUCCACC GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG CAACAGUC	10820
3076	ACUGUUGG G GUGGAGCC	2333	GGCUCCAC GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG CCAACAGU	10821
3079	GUUGGGGU G GAGCCCUC	2334	GAGGGCUC GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG ACCCCAAC	10822
3080	UUGGGGUG G AGCCCUCA	2335	UGAGGGCU GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG CACCCCAA	10823
3095	CACGCUCA G GGCCUACU	2336	AGUAGGCC GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG UGAGCGUG	10824
3096	ACGCUCAG G GCCUACUC	2337	GAGUAGGC GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG CUGAGCGU	10825
3145	CACCAAUC G GCAGUCAG	2338	CUGACUGC GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG GAUUGGUG	10826
3153	GGCAGUCA G GAAGGCAG	2339	CUGCCUUC GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG UGACUGCC	10827
3154	GCAGUCAG G AAGGCAGC	2340	GCUGCCUU GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG CUGACUGC	10828
3157	GUCAGGAA G GCAGCCUA	2341	UAGGCUGC GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG UUCCUGAC	10829
3187	ACCUCUAA G GGACACUC	2342	GAGUGUCC GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG UUAGAGGU	10830
3188	CCUCUAAG G GACACUCA	2343	UGAGUGUC GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG CUUAGAGG	10831
3189	CUCUAAGG G ACACUCAU	2344	AUGAGUGU GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG CCUUAGAG	10832
3203	CAUCCUCA G GCCAUGCA	2345	UGCAUGGC GGAGGAAACUCC CU UCAAGGACAUCGUCCGGG UGAGGAUG	10833

Input Sequence = AF100308. Cut Site = YG/M or UG/U.
Stem Length = 8. Core Sequence = GGAGGAAACUCC CU UCAAGGACAUCGGGGAF100308 (Hepatitis B virus strain 2-18, 3215 bp)

Table XI: Human HBV Enzymatic Nucleic Acid and Target Sequence

Pos	SUBSTRATE	Seq	RPI#	Ribozyme Alias	ENZYMATIC NUCLEIC ACID	Seq
		Œ				A
313	Þ	2346	18157 HBV	HBV-313 Rz-7 RNA	GACUGCG CUGAUGAGGCCGUUAGGCCGAA AUUUUGG B	10834
327	CCCAAAU C UCCAGUC	2347	18158 HBV	HBV-327 Rz-7 RNA	GACUGGA CUGAUGAGGCCGUUAGGCCGAA AUUUGGG B	10835
334	CUCCAGU C ACUCACC	2348	18159 HBV	HBV-334 Rz-7 RNA	GGUGAGU CUGAUGAGGCCGUUAGGCCGAA ACUGGAG B	10836
408	UCUUCCU C UGCAUCC	2349	18160 HBV	HBV-408 Rz-7 RNA	GGAUGCA CUGAUGAGGCCGUUAGGCCGAA AGGAAGA B	10837
557	UCUAUGU U UCCCUCA	2350	18161 HBV	HBV-557 Rz-7 RNA	UGAGGGA CUGAUGAGGCCGUUAGGCCGAA ACAUAGA B	10838
1255		2351	18162 HBV	HBV-1255 Rz-7 RNA	CAGAGGA CUGAUGAGGCCGUNAGGCCGAA ACACAAA B	10839
1538	ccucucu u vacecee	2352	18163 HBV	HBV-1538 Rz-7 RNA	CCGCGUA CUGAUGAGGCCGUUAGGCCGAA AGAGAGG B	10840
1756	AGGAGGU U AGGUUAA	2353	18164 HBV	HBV-1756 Rz-7 RNA	UVAACCU CUGAUGAGGCCGUUAGGCCGAA ACCUCCU B	10841
1861	AUGUCCU A CUGUUCA	2354		HBV-1861 Rz-7 RNA	UGAACAG CUGAUGAGGCCGUUAGGCCGAA AGGACAU B	10842
2504	UUCUUCU A CGGUACC	2355	18166 HBV	HBV-2504 Rz-7 RNA	GGUACCG CUGAUGAGCCGUUAGGCCGAA AGAAGAA B	10843
10	CUCCACC A CUUUCCA	2356	18197 HBV	HBV-10 CHz-7 RNA	UGGAAAG CUGAUGAGCCGUUAGGCCGAA GGUGGAG B	10844
335	UCCAGUC A CUCACCA	2357		HBV-335 CHz-7 RNA	UGGUGAG CUGAUGAGGCCGUUAGGCCGAA GACUGGA B	10845
1258	augucuc c ucuacca	2358	18199 HBV	HBV-1258 CHz-7 RNA	CGGCAGA CUGAUGAGGCCGUUAGGCCGAA GAGACAC B	10846
2307	GACCACC A AAUGCCC	2359	18200 HBV	HBV-2307 CHz-7 RNA	GGGCAUU CUGAUGAGGCCGUUAGGCCGAA GGUGGUC B	10847
347	UCACCAACCU G UUGUC	2360		HBV-347 GCl.Rz-5/10 RNA	GACAA UGAUGGCAUGCACUAUGCGCG AGGUUGGUGA B	10848
350	CCAACCUGUU G UCCUC	2361		HBV-350 GCl.Rz-5/10 RNA	GAGGA UGAUGGCAUGCACUAUGCGCG AACAGGUUGG B	10849
1508	UCCGCCUAUU G UACCG	2362		HBV-1508 GCl.Rz-5/10 RNA	CGGUA UGAUGGCAUGCACUAUGCGCG AAUAGGCGGA B	10850
234	AAUCCU C ACAAUA	2363	18334 HBV	HBV-234 Rz-6 allyl stabl	ugaguagu cVGAuGaggccguuaggccGaa Aggauu B	10851=
252	GAGUCU A GACUCG	2364	18335 HBV	HBV-252 Rz-6 allyl stabl	c _s g _{sagguc} cVGAuGaggccguuaggccGaa Agacuc B	10852=
268	UGGACU U CUCUCA	2365	18337 HBV	HBV-268 Rz-6 allyl stabl	u _E g _E a _E g _e ag cogAuGaggccguuaggccGaa Agucca B	10853
280	AAUUUU C UAGGGG	2366	18345 HBV	HBV-280 Rz-6 allyl stabl	C _S C _S C _S ua cVGAuGaggccguuaggccGaa Aaaauu B	10854
313	CAAAAU U CGCAGU	2367	18346 HBV	HBV-313 Rz-6 allyl stabl	agcgugggccgunaggccGaa Auuuug B	10855
395	GGCGUU U VAUCAU	2368	18350 HBV	HBV-395 Rz-6 allyl stabl	aguggaagua cTGAuGaggccguuaggccGaa Aacgcc B	10856
402	UAUCAU C UUCCUC	2369	18351 HBV	HBV-402 Rz-6 allyl stabl	g _s a _s g _s aa cVGAuGaggccguuaggccGaa Augaua B	10857
607	UGUAUU C CCAUCC	2370	18355 HBV	HBV-607 Rz-6 allyl stabl	g _{ggagug} g cVGAuGaggccguuaggccGaa Aauaca B	108581
697	unuguu c Aguagu	2371	18362 HBV	HBV-697 Rz-6 allyl stabl	agcscaagcu cVGAuGaggccguuaggccGaa Aacaaa B	10859
1539	Þ	2372	18366 HBV	HBV-1539 Rz-6 allyl stabl	c _s c _s g _s c _s gu cVGAuGaggccguuaggccGaa Aagaga B	10860
1599	UCACCU C UGCACG	2373	18367 HBV	HBV-1599 Rz-6 allyl stabl	c ₈ 9 ₈ u ₈ 9 ₈ ca cuGhuGaggccguuaggccGaa Agguga B	10861
1607		2374		Rz-6	c _s c _s a _s u _s gc cVGAuGaggccguuaggccGaa Acgugc B	10862
1833	UCACCU C UGCCUA	2375	18371 HBV	HBV-1833 Rz-6 allyl stabl	u _s a _s g _s ga cuGAuGaggccguuaggccGaa Agguga B	10863

10864	10865	10866	10867	10868	10869	10870	10871	10872	10873	10874	10875	10876	10877	10878	10879	10880	10881	10882	10883	10884	10885	10886	10887	-		10890	10891	10892	10893	10894	10895		10897
gscggaggccgunaggccGaa Aguucu B	ggaguenga cughudaggccguuaggccGaa Aucuuc B	g _S u _g u _g c _s cc cVGAuGaggccguuaggccGaa Agaaua B	aggaga cUGAuGaggccgunaggccGaa Iaggca B	g _B u _g a _g ac cUGAuGaggccguuaggccGaa Iagcca B	gggcgagccguuaggccGaa Iuaaac B	gscsageg cognuaggccdaa Iguaaa B	csassugg cOGAuGaggccguuaggccGaa Iguugc B	cscsaggeug cVGAuGaggecgunaggecGaa Igguug B	gsgsaguguc cVGAuGaggccguuaggccGaa Icgccg B	g _B u _g c _B c _B gc cVGAuGaggccguuaggccGaa Igauuc B	a _g a _g ag cUGAuGaggccguuaggccGaa Igugcg B	ascagsusgc cVGAuGaggccguuaggccGaa Laggug B	g _B c _B c _B c _B ca cVGAuGaggccguuaggccGaa Igucgg B	gscscsusac cochudaggccguuaggccGaa Iccucc B	csaggagg cVGAuGaggccguuaggccGaa Iaaaaa B	ascsasgeu cVGAuGaggeeguuaggeeGaa Igagge B	asgsgcgac cVGAuGaggccgunaggccGaa Icuugg B	uggsugcaac cVGAuGaggccguuaggccGaa Agaaaaa B	c _g c _s a _g c _g cac cVGAuGaggccguuaggccGaa Agucuag B	ususgsag cVGAuGaggccguuaggccGaa Aguccac B	agususgaga cVGAuGaggccguuaggccGaa Aagucca B	agagacganagaccgunagaccgaa Agaaguc B	ggagaga AgagacgnnaggccGaa Agagaag B	cscsusasgaa cVGAuGaggccguuaggccGaa Auugaga B	cscsugaga cVGAuGaggccguuaggccGaa Aauugag B	c _s c _s c _s uag cVGAuGaggccguuaggccGaa Aaauuga B	g _g g _{aacs} ugc cVGAuGaggccguuaggccGaa Aauuuug B	cggscgca cUGAuGaggccguuaggccGaa Acacauc B	agusgsasuaa cVGAuGaggccguuaggccGaa Acgccgc B	aggsaggaa cuGAuGaggccgunaggccGaa Auganaa B	usg _B aggca cOGAuGaggccguuaggccGaa Agcagca B	aggaagaan cuGAuGaggccgunaggccGaa Aggcana B	ascsusasgua coGAuGaggccguuaggccGaa Acugagc B
74 HBV-2383 Rz-6 allyl stab1	76 HBV-2429 Rz-6 allyl stabl	79 HBV-2831 Rz-6 allyl stabl	91 HBV-430 CHz-6 allyl stabl	96 HBV-676 CHz-6 allyl stabl	97 HBV-683 CHz-6 allyl stabl	02 HBV-1150 CHz-6 allyl stabl	33 HBV-1200 CHz-6 allyl stabl	04 HBV-1201 CHz-6 allyl stabl	05 HBV-1444 CHz-6 allyl stabl	06 HBV-1451 CHz-6 allyl stab1	07 HBV-1533 CHz-6 allyl stabl	HBV-1600 CHz-6	11 HBV-1698 CHz-6 allyl stabl	12 HBV-1784 CHz-6 allyl stabl	14 HBV-1829 CHz-6 allyl stabl	20 HBV-1876 CHz-6 allyl stabl	22 HBV-1880 CHz-6 allyl stabl	33 HBV-218 Rz-7 allyl stabl	36 HBV-257 Rz-7 allyl stabl	38 HBV-268 Rz-7 allyl stabl	39 HBV-269 Rz-7 allyl stabl	10 HBV-271 Rz-7 allyl stabl	11 HBV-273 Rz-7 allyl stabl	12 HBV-277 Rz-7 allyl stabl	43 HBV-278 Rz-7 allyl stabl	HBV-279 Rz-7 allyl	17 HBV-314 Rz-7 allyl stab1	48 HBV-385 Rz-7 allyl stabl	49 HBV-394 Rz-7 allyl stabl	52 HBV-402 Rz-7 allyl stabl	33 HBV-423 Rz-7 allyl stabl	54 HBV-429 Rz-7 allyl stabl	56 HBV-679 Rz-7 allyl stabl
2376 18374	2377 18376	2378 1837	2379 18391	2380 18396	2381 18397	2382 18402	2383 18403	2384 18404	2385 18405	2386 18406	2387 18407	2388 18410	2389 18411	2390 18412	2391 18414	2392 18420	2393 18422	2394 18333	2395 18336	2396 1833	2397 18339	2398 18340	2399 18341	2400 18342	2401 18343	2402 18344	2403 18347	2404 18348	2405 18349	2406 18352	2407 18353	2408 18354	2409 18356
AGAACU C CCUCGC 2:	GAAGAU C UCAAUC 2:	UAUUCU U GGGAAC 2.	UGCCUC A UCUUCU	UGGCUC A GUUUAC 2:	GUUUAC U AGUGCC 2:	c cennec	GCAACC C CCACUG 2.	CAACCC C CACUGG 2	CGGCGC U GAAUCC 2:	GAAUCC C GCGGAC 2.	CGCACC U CUCUUU 2.	U GCACGU	CCGACC U UGAGGC 2:	GGAGGC U GUAGGC	UUUUUC A CCUCUG	GCCUCC A AGCUGU	CCAAGC U GUGCCU	UNUUUCU U GUUGACA 2:	CUAGACU C GUGGUGG 2:	GUGGACU U CUCUCAA	UGGACUU C UCUCAAU	GACUUCU C UCAAUUU 2:	CUUCUCU C AAUUUUC 2	UCUCAAU U UUCUAGG 2,	CUCAAUU U UCUAGGG 2,	U CUAGGGG	c gcagucc	GAUGUGU C UGCGGCG	GCGGCGU U UUAUCAU	UNAUCAU C UUCCUCU 2,	UGCUGCU A UGCCUCA	UAUGCCU C AUCUUCU 2.	GCUCAGU U UACUAGU
2383	2429	2831	430	929	683	1150	1200	1201	1444	1451	1533	1600	1698	1784	1829	1876	1880	218	257	268	269	271	273	277	278	279	314	385	394	402	423	429	619

10898	10899	10900	10901	10902	10903	10904	10905	10906	10907	10908	10909	10910	10911	10912	10913	10914	10915	10916	1.0917	10918	10919	10920	10921.	10922=	10923	10924	10925	10926	10927	10928	10929	10930	10931
Aacugag B	Aaacuga B	Aguaaac B	Auggcac B	Aauggca B	Aggugcg B	Agaggug B	Agagagg B	Acagccu B	Augccua B	Aggcuug B	Aggcaca B	Aguucuu B	Auauggu B	Aauaugg B	Agaauan B	Iucuaga B	Inccacc B	Iaagucc B	Iagaagu B	Iagagaa B	Iacacau B	Icaggan B	Icagcag B	Icauagc B	Igcauag B	Iaggcau B	Iaauaca B	Igaauac B	Iagaaac B	Icacuag B	Igcacua B	Igaaagc B	Iuaaagg B
csascsusagu cVGAuGaggccguuaggccGaa	ggcgagcGuag cWGAuGaggccguuaggccGaa	agugggcac cuGAuGaggccguuaggccGaa	c _g u _g g _g a _g aca cUGAuGaggccguuaggccGaa	cDGAuGaggccguuaggccGaa	gsusasaga cudAuGaggccguuaggccGaa	g _B c _B g _B u _B aaa cUGAuGaggccguuaggccGaa	c _B c _B g _E c _B gua cVGAuGaggccguuaggccGaa	ugugaguc cuGAuGaggccguuaggccGaa	agcgcgunaggccGaa	c _g a _g g _g c _g uug cVGAuGaggccguuaggccGaa	g _s c _s c _s a _s ccc cOGAuGaggccguuaggccGaa			u _B u _g c _g caa cUGAuGaggccguuaggccGaa	usgsususcc cudAuGaggccguuaggccGaa	c _B a _B c _B c _B acg cUGAuGaggccguuaggccGaa	u _g gg _{agg} aga cVGAuGaggccguuaggccGaa	a _s a _s u _s gag cDGAuGaggccguuaggccGaa	a _g agagung cVGAuGaggccguuaggccGaa	aggaaan cudAuGaggccguuaggccGaa	agcggcgc cDGAuGaggccguuaggccGaa	g _g c _g a _g u _g agc cWGAuGaggccguuaggccGaa	g _g a _g g _g g _c au c U GAuGaggccguuaggccGaa	a _s a _s g _a a _s uga cTGAuGaggccguuaggccGaa	g _B a _B ag _B aug cTGAuGaggccguuaggccGaa	a _g a _g g _{ag} aga cUGAuGaggccguuaggccGaa	u ₈ g ₈ g ₈ gug cVGAuGaggccguuaggccGaa	a _g u _g g _g gau cVGAuGaggccguuaggccGaa	usg _s a _s g _s cca cUGAuGaggccguuaggccGaa	a _g a _g c _g a _g aau c U GAuGaggccguuaggccGaa	g _g a _g a _g aaa cUGAuGaggccguuaggccGaa	a _g c _g a _g g _s ugg cTGAuGaggccguuaggccGaa	g _g c _g a _g agg cUGAuGaggccguuaggccGaa
18357 HBV-680 Rz-7 allyl stab1	18358 HBV-681 Rz-7 allyl stabl	18359 HBV-684 Rz-7 allyl stab1	18360 HBV-692 Rz-7 allyl stabl	18361 HBV-693 Rz-7 allyl stabl	18363 HBV-1534 Rz-7 allyl stabl	18364 HBV-1536 Rz-7 allyl stabl	18365 HBV-1538 Rz-7 allyl stabl	18369 HBV-1787 Rz-7 allyl stabl	18370 HBV-1793 Rz-7 allyl stabl		18373 HBV-1887 Rz-7 allyl stabl	HBV-2383 Rz-7 allyl	HBV-2828 Rz-7		18380 HBV-2831 Rz-7 allyl stabl	CHz-7	18382 HBV-267 CHz-7 allyl stabl	18383 HBV-270 CHz-7 allyl stabl	18384 HBV-272 CHz-7 allyl stab1	18385 HBV-274 CHz-7 allyl stabl	18386 HBV-386 CHz-7 allyl stabl	18387 HBV-419 CHz-7 allyl stabl		HBV-427 CHz-7	HBV-428 CHz-7	HBV-430		HBV-609 CHz-7 allyl	18395 HBV-669 CHz-7 allyl stabl	18398 HBV-689 CHz-7 allyl stabl	18399 HBV-690 CHz-7 allyl stabl	18400 HBV-718 CHz-7 allyl stabl	18401 HBV-1149 CHz-7 allyl stabl
2410 1	2411 1	2412 1	2413 1	2414 1	2415 1	2416 14	2352 1	2417 1	2418 1	2419 1	2420 1	2421 18	2422 18	2423 18	2424 1	2425 18	2426 1	2427	2428 1	2429 1	2430 14	2431 1	2432 16	2433 18	2434 16	2435 18	2436 18	2437 118	2438 18	2439 18	2440 18	2441 18	2442 18
CUCAGUU U ACUAGUG	UCAGUUU A CUAGUGC	GUUUACU A GUGCCAU	GUGCCAU U UGUUCAG	UGCCAUU U GUUCAGU	CGCACCU C UCUUUAC	caccucu c uunacec	ccucucu u vacecee	AGGCUGU A GGCAUAA	UAGGCAU A AAUUGGU	CAAGCCU C CAAGCUG	veveccy v eceveec	AAGAACU C CCUCGCC	Þ		D	Þ	GGUGGAC U UCUCUCA	GGACUUC U CUCAAUU	ACTUCUC U CAAUUUU	UUCUCUC A AUUUUCU	AUGUGUC U GCGGCGU	AUCCUGC U GCUAUGC	cuecuec u Aueccuc	GCUAUGC C UCAUCUU	cuaugee u caucuue	AUGCCUC A UCUUCUU			ם		UAGUGCC A UUUGUUC	GCUUUCC C CCACUGU	CCUUUAC C CCGUUGC
680	681	684	692	693	1534	1536	1538	1787	1793	1874	1887	2383	2828	2829	2831	256	267	270	272	274	386	419	422	427	428	430	608	609	699	689	069	718	1149

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10932	10933	10934	10935	10936	10937	10938	10939	10940	10941	10942	10943	10944	10945	10946	10947	10948	10949	10950	10951	10952	10953	10954	10955	10956	10957	10958	10959	10960	10961	10962	10963	10964	10965
Iaggugc B	Iagaggu B	Iccuaca B	Iugaaaa B	Igugaaa B	Icuugaa B	Igcuuga B	Iaggcuu B	Igaggcu B	Icuugga B	Inucuuc B	Iaguucu B	Igaguuc B	Icgacgc B	Iaauaug B	Aggauu B	Agacuc B	Agucca B	Aaaauu B	Auuuug B	Aacgcc B	Augaua B	Aauaca B	Aacaaa B	Aagaga B	Agguga B	Acguge B	Agguga B	Aguucu B	Aucuuc B	Agaaua B	Iaggca B	Iagcca B	Iuaaac B
c _s g _s u _s a _s aag cVGAuGaggccguuaggccGaa	c _S g _S c _S g _B uaa cVGAuGaggccguuaggccGaa	c _g agaguna cUGAuGaggccgunaggccGaa	agggccgunaggccGaa	u _B agggccguuaggccGaa	g _E c _B u _E gga cUGAuGaggccguuaggccGaa	a _s g _s c _s u _s ugg c <mark>U</mark> GAuGaggccguuaggccGaa	a _B c _B a _B g _G cuu cDGAuGaggccguuaggccGaa	c _g agc _g agcu cVGAuGaggccguuaggccGaa	agagggagac cDGAuGaggccguuaggccGaa	g _E c _S g _S aggg cDGAuGaggccguuaggccGaa	agggccgunaggccGaa	g _s a _s g _s cga cuGAuGaggccguuaggccGaa	g _{sagus} c _s uuc cOGAuGaggccguuaggccGaa	g _s u _s u _s cca coghuGaggccguuaggccGaa	ugagugu cogangagacannagacaga	c _s g _s a _s g _{uc} cVGAVGaggccguuaggccGaa	ugggaggccguuaggccGaa	c _g c _g c _g ua cVGAVGaggccguuaggccGaa	ascsusged cuthudaggeeguuaggeedaa	agus9gagua coGAVGaggccguuaggccGaa	gsaggaaa cudAuGaggccguuaggccGaa	9 ₈ 9 ₈ a ₈ u ₈ 99 cVGAVGaggccguuaggccGaa	agcgcgunaggccGaa	cgcggcggunaggccgaa	c _s g _s u _s g _s ca <i>cU</i> GA <i>U</i> GaggccguuaggccGaa	c _s c _s a _s u _s gc cVGAVGaggccguuaggccGaa	usasgsca cudAuGaggccguuaggccGaa	g _B c _B g _B gg cVGAVGaggccguuaggccGaa	gsagusga cuchucaggccguuaggccGaa	98ususcacc cVGAVGaggccguuaggccGaa	aggagagagagagagaagacagaa	g _B u _B a _B ac cVGAVGaggccguuaggccGaa	gsgscsascu cVGAVGaggccguuaggccGaa
18408 HBV-1535 CHz-7 allyl stabl	18409 HBV-1537 CHz-7 allyl stabl o	18413 HBV-1791 CHz-7 allyl stabl C	18415 HBV-1831 CHz-7 allyl stabl	stabl	18417 HBV-1872 CHz-7 allyl stabl	18418 HBV-1873 CHz-7 allyl stabl	18419 HBV-1875 CHz-7 allyl stabl	CHz-7 allyl stab1	18423 HBV-1880 CHz-7 allyl stab1	stabl	18425 HBV-2384 CHz-7 allyl stab1	HBV-2385 CHz-7 allyl stabl	18427 HBV-2422 CHz-7 allyl stabl	0 CHz-7 allyl stab1	19179 HBV-234 Rz-6 amino stabl	19180 HBV-252 Rz-6 amino stabl	19182 HBV-268 Rz-6 amino stabl	19190 HBV-280 Rz-6 amino stabl	19191 HBV-313 Rz-6 amino stabl	19195 HBV-395 Rz-6 amino stabl	19196 HBV-402 Rz-6 amino stabl	19200 HBV-607 Rz-6 amino stabl	19207 HBV-697 Rz-6 amino stabl	19211 HBV-1539 Rz-6 amino stabl			19216 HBV-1833 Rz-6 amino stabl		19221 HBV-2429 Rz-6 amino stab1	19224 HBV-2831 Rz-6 amino stabl	19236 HBV-430 CHz-6 amino stabl	19241 HBV-676 CHz-6 amino stabl	19242 HBV-683 CHz-6 amino stabl
2443 18		2445 18	┝	2447 18	2448 18	2449 18	2450 18	2451 18	├	2453 18	2454 18	 	-	2457 18	2363 19	2364 19	2365 19	2366 19	2367 19	2368 19	2369 19	2370 19	2371 19	2372 19	2373 19	2374 19	2375 19	2376 19	2377 19	2378 19	2379 19	2380 19	2381 19
GCACCUC U CUUUACG	ACCUCUC U UUACGCG	UGUAGGC A UAAAUUG	UNUVICAC C UCUGCCU	UUUCACC U CUGCCUA	UUCAAGC C UCCAAGC	UCAAGCC U CCAAGCU	AAGCCUC C AAGCUGU	AGCCUCC A AGCUGUG	UCCAAGC U GUGCCUU	GAAGAAC U CCCUCGC	AGAACUC C CUCGCCU	c nceccnc	GAAGAUC	U UGGGAAC	AAUCCU C ACAAUA	GAGUCU A GACUCG	UGGACU U CUCUCA	AAUUUU C UAGGGG	CGCAGU	U UAUCAU	UAUCAU C UUCCUC	UGUAUU C CCAUCC	UNUGUU C AGUGGU	ucucuu u Acecee	c ugcace	C GCAUGG	UCACCU C UGCCUA	AGAACU C CCUCGC	GAAGAU C UCAAUC		UGCCUC A UCUUCU	A GUUUAC	GUUUAC U AGUGCC
1535	1537	1791	1831	1832	1872	1873	1875	1876	1880	2382	2384	2385	2422	2830	234	252	268	280	313	395	402	607	697	1539	1599	1607	1833	2383	2429	2831	430	929	683

10966	10967	10968	10969	10970	10971	10972	10973	10974	10975	10976	10977	10978	10979	10980	10981	10982	10983	10984	10985	10986	10987	10988	10989.	10990	10991	10992	10993	10994	10995	10996	10997	10998	10999
g _E c _E a _E a _S cg cUGAUGaggccguuaggccGaa Iguaaa B	csagguagg cVGAVGaggccguuaggccGaa Iguugc B	c _s c _s a _s g _s ug cVGAVGaggccguuaggccGaa Igguug B	gsgasusuc cVGAVGaggccguuaggccGaa Icgccg B	g _B u _B c _B gc cVGAVGaggccguuaggccGaa Igauuc B	asagaga cognogagacaganagacaga Igugaa B	agcgguggc cVGAVGaggccguuaggccGaa Iaggug B	g _s c _s c _s u _s ca cVGAVGaggccguuaggccGaa Igucgg B	g _B c _B c _B u _B ac cVGAVGaggccguuaggccGaa Iccucc B	с _в авдавад сИЗАИЗадссдииаддссВаа Івавава В	a _s c _B a _s g _s cu cVGAVGaggccguuaggccGaa Igaggc B	agggggggccgunaggccGaa Icuugg B	usgsugcgaac cochocaggccguuaggccGaa Agaaaaa B	c _s c _s a _s cac cVGAVGaggccguuaggccGaa Agucuag B	uguggag cVGAVGaggccguuaggccGaa Aguccac B	a _B u _B u _B g _B aga cVGAVGaggccguuaggccGaa Aagucca B	a _s a _s a _s uga c <i>UGAU</i> GaggccguuaggccGaa Agaaguc B	gsagagaun cVGAVGaggccguuaggccGaa Agagaag B	cscsusagaa cVGAVGaggccguuaggccGaa Auugaga B	c _s c _s c _s u _s aga c <i>UGAU</i> GaggccguuaggccGaa Aauugag B	c _B c _B c _B c _B uag cVGAVGaggccguuaggccGaa Aaauuga B	gggagcgunaggccGaa Aauuuug B	csgcscgca cVGAVGaggccguuaggccGaa Acacauc B	a _s u _s g _{sas} uaa c <i>UGAU</i> GaggccguuaggccGaa Acgccgc B	aggaaggaa cuGAUGaggccguuaggccGaa Augauaa B	u _s g _s a _s g _s gca c <i>VGAVG</i> aggccguuaggccGaa Agcagca B	aggala cVGAVGaggccguuaggccGaa Aggcaua B	a _B c _B u _B agua c <i>VGAV</i> GaggccguuaggccGaa Acugagc B	c _s a _s c _s u _s agu cVGAVGaggccguuaggccGaa Aacugag B	g _s c _s a _s c _s uag cVGAVGaggccguuaggccGaa Aaacuga B	agusgscac cVGAVGaggccguuaggccGaa Aguaaac B	c _B u _B g _S a _B aca cVGAVGaggccguuaggccGaa Auggcac B	asc _B uggsaac cVGAVGaggccguuaggccGaa Aauggca B	g _B u _B a _B aga cVGAVGaggccguuaggccGaa Aggugcg B
19247 HBV-1150 CHz-6 amino stabl	19248 HBV-1200 CHz-6 amino stabl	19249 HBV-1201 CHz-6 amino stabl	19250 HBV-1444 CHz-6 amino stabl	19251 HBV-1451 CHz-6 amino stabl	19252 HBV-1533 CHz-6 amino stabl	19255 HBV-1600 CHz-6 amino stabl	19256 HBV-1698 CHz-6 amino stabl	19257 HBV-1784 CHz-6 amino stabl	19259 HBV-1829 CHz-6 amino stabl		19267 HBV-1880 CHz-6 amino stabl	HBV-218	19181 HBV-257 Rz-7 amino stabl		19184 HBV-269 Rz-7 amino stabl	_	HBV-273	19187 HBV-277 Rz-7 amino stabl							HBV-423 Rz-7 amino	HBV-429 Rz-7 amino				19204 HBV-684 Rz-7 amino stabl	19205 HBV-692 Rz-7 amino stabl	19206 HBV-693 Rz-7 amino stabl	19208 HBV-1534 Rz-7 amino stabl
2382 1	2383 1	2384 1	2385 1	2386 1	2387 1	2388 1	2389 1	2390 1.	2391 1	2392 1	2393 15	2394 19	2395 15	2396 15	2397 15	2398 15	2399 15	2400 15	2401 15	2402 15	2403 15	2404 15	2405 15	2406 15	2407 15	2408 15	2409 15	2410 15	2411 15	2412 15	2413 15	2414 15	2415 15
UNUACC C CGUUGC	GCAACC C CCACUG	CAACCC C CACUGG	CGGCGC U GAAUCC	GAAUCC C GCGGAC		caccuc v gcacgu	CCGACC U UGAGGC	GGAGGC U GUAGGC	UNIVIUC A CCUCUG	GCCUCC A AGCUGU		5		Þ	UGGACUU C UCUCAAU	GACUUCU C UCAAUUU	CUUCUCU C AAUUUUC	UCUCAAU U UUCUAGG		ם		GAUGUGU C UGCGGCG	GCGGCGU U UUAUCAU	UNAUCAU C UUCCUCU	UGCUGCU A UGCCUCA	UAUGCCU C AUCUUCU		Þ	UCAGUUU A CUAGUGC	GUUUACU A GUGCCAU	GUGCCAU U UGUUCAG	UGCCAUU U GUUCAGU	CGCACCU C UCUUUAC
1150	1200	1201	1444	1451	1533	1600	1698	1784	1829	1876	1880	218	257	268	269	271	273	277	278	279	314	385	394	402	423	429	629	680	681	684	692	693	1534

þ		B 11001	B 11002	B 11003	B 11004	B 11005	B 11006	B 11007	B 11008	B 11009	B 11010	B 11011	B 11012	B 11013	B 11014	B 11015	B 11016	B 11017	B 11018	B 11019	B 11020	B 11021	B 11022	B 11023	B 11024	B 11025	B 11026	B 11027	B 11028	B 11029	B 110301		B 11031
C C D C C C C C C C C C C C C C C C C C	cochocaggecgaaaggeccaa	c _s c _s g _{scs} gua cVGAVGaggccguuaggccGaa Agagagg	ugugaguc cochologagaccanuagaccaa Acagccu	ascscsagaun cVGAVGaggccguuaggccGaa Augccua	csaggcgunaggccgunaggccGaa Aggcung	gscscsacc cVGAVGaggccguuaggccGaa Aggcaca	gggcgaggccgunaggccGaa Aguucuu	ugcgcgaag cVGAVGaggccguuaggccGaa Auauggu	uguscscaa cVGAVGaggccguuaggccGaa Aauaugg	usggugususcc cVGAVGaggccguuaggccGaa Agaauau	c _s a _s c _s acg cVGAVGaggccguuaggccGaa Iucuaga	ugggaggaga cVGAVGaggccguuaggccGaa Iuccacc	sagus gaag cVGAVGaggccguuaggccGaa Iaagucc	agagaccgunaggccGaa Iagaagu	a _B g _B a _B a _B aau c <i>UGAU</i> GaggccguuaggccGaa Iagagaa	a _B c _B g _B c _B cgc cUGAUGaggccguuaggccGaa Iacacau	gscsaguga congAVGaggccguuaggccGaa Icaggau	gsasgscau cVGAVGaggccguuaggccGaa Icagcag	saggada cVGAVGaggccguuaggccGaa Icauagc	g _{sagagaug} c <i>VGAV</i> GaggccguuaggccGaa Igcauag	a _B a _B g _B a _B aga c <i>UGAU</i> GaggccguuaggccGaa Iaggcau	usggggggang cVGAVGaggccguuaggccGaa Iaauaca	agugggggau cVGAVGaggccguuaggccGaa Igaauac	usgsasgcca cVGAVGaggccguuaggccGaa Iagaaac	agagcsaaaa cVGAVGaggccguuaggccGaa Icacuag	s ^a s ^a sc _s aaa c V GA V GaggccguuaggccGaa Igcacua	a _s c _s a _{s9s} ugg c <i>V</i> GAVGaggccguuaggccGaa Igaaagc	g _B c _B a _B a _B cgg cUGAVGaggccguuaggccGaa Iuaaagg	csgsusasaag cVGAVGaggccguuaggccGaa Iaggugc	csgscsguaa cVGAVGaggccguuaggccGaa Iagaggu	csasasusuua cVGAVGaggccguuaggccGaa Iccuaca	217777777777777777777777777777777777777	agybygcgaya cochocagyccyuuayycccaa ruyaaaa
mon 1536 pe a amine etchi	nbv-1536 KZ-/ amilio stabl	HBV-1538 Rz-7 amino stabl	HBV-1787 Rz-7 amino stabl	HBV-1793 Rz-7 amino stabl	HBV-1874 Rz-7 amino stabl	HBV-1887 Rz-7 amino stabl	HBV-2383 Rz-7 amino stabl	HBV-2828 Rz-7 amino stabl	HBV-2829 Rz-7 amino stab1	HBV-2831 Rz-7 amino stabl	HBV-256 CHz-7 amino stab1	HBV-267 CHz-7 amino stabl	HBV-270 CHz-7 amino stabl a	HBV-272 CHz-7 amino stabl	HBV-274 CHz-7 amino stabl	HBV-386 CHz-7 amino stabl	HBV-419 CHz-7 amino stabl	HBV-422 CHz-7 amino stabl	HBV-427 CHz-7 amino stabl a	HBV-428 CHz-7 amino stabl	HBV-430 CHz-7 amino stabl	HBV-608 CHz-7 amino stabl	HBV-609 CHz-7 amino stabl	HBV-669 CHz-7 amino stabl	HBV-689 CHz-7 amino stabl	HBV-690 CHz-7 amino stabl 9	HBV-718 CHz-7 amino stabl	HBV-1149 CHz-7 amino stabl	HBV-1535 CHz-7 amino stabl	HBV-1537 CHz-7 amino stabl	HBV-1791 CHz-7 amino stabl	HBV-1831 CHz-7 amino stabl	
1000	2416 T240	2352 19210	2417 19214	2418 19215	2419 19217	2420 19218	2421 19220	2422 19222	2423 19223	2424 19225	2425 19226	2426 19227	2427 19228	2428 19229	2429 19230	2430 19231	2431 19232	2432 19233	2433 19234	2434 19235	2435 19237	2436 19238	2437 19239	2438 19240	2439 19243	2440 19244	2441 19245	2442 19246	2443 19253	2444 19254	2445 19258	2446 19260	-
Opposition to individuo	C DOOBCGC		AGGCUGU A GGCAUAA	UAGGCAU A AAUUGGU	CAAGCCU C CAAGCUG	UGUGCCU U GGGUGGC	c ccacecc	U COUGGGA	CCAUAUU C UUGGGAA	AUAUUCU U GGGAACA	UCUAGAC U CGUGGUG	UCUCUCA		u caauuuu	UUCUCUC A AUUUUCU	AUGUGUC U GCGGCGU	AUCCUGC U GCUAUGC 2	CUGCUGC U AUGCCUC	GCUAUGC C UCAUCUU 2		A UCUUCUU	UGUAUUC C CAUCCCA 2	GUAUUCC C AUCCCAU 2	GUUUCUC U UGGCUCA	CUAGUGC C AUTUGUU 2	uuueuuc	c ccacueu	c ccennec	U CUUUACG	U UUACGCG	UGUAGGC A UAAAUUG	ununcac c ucueccu	
1636	OCCT	1538	1787	1793	1874	1887	2383	2828	2829	2831	256	267	270	272	274	386	419	422	427	428	430	608	609	699	689	069	718	1149	1535	1537	1791	1831	

11034	11035	11036	11037	11038	11039	11040	11041	11042	11043	11044	11045	11046	11047	11048	11049	11050	11051	11052	11053	11054	11055	11056	11057	11058	11059	11060	11061
asgscgusugg cVGAVGaggccguuaggccGaa Igcuuga B	ascsasgcun cVGAVGaggccgunaggccGaa Iaggcuu B	c _s a _s c _s a _s gcu c <i>VGAVG</i> aggccguuaggccGaa Igaggcu B	a _s a _s g _s cac c U GA U GaggccguuaggccGaa Icuugga B	g _B c _S g _B aggg c U GA U GaggccguuaggccGaa Iuucuuc B	a _E g _E g _E gag cVGAVGaggccguuaggccGaa Iaguucu B	g _s ag _s g _s cga cVGAVGaggccguuaggccGaa Igaguuc B	gsaguscsunc cVGAVGaggccguuaggccGaa Icgacgc B	g _B u _B u _B c _B cca cVGAVGaggccguuaggccGaa Iaauaug B	g _B a _B c _B g uGAU _B g gcauGcacuaugc gcg gaauuuuggc B	a _B g _B a _B a uGAU _B g gcauGcacuaugc gcg auccagcgau B	g _{sasgs} a uGAU _s g gcauGcacuaugc gcg aaacgggcaa B	csusga uGAUsg gcauGcacuaugc gcg aaauggcacu B	u _s g _s g _s u uGAU _s g gcauGcacuaugc gcg ggcagaggag B	a _s c _s g _s g uGAU _s g gcauGcacuaugc gcg agaggugaag B	a _B g _B g _B a uGAU _B g gcauGcacuaugc gcg agcuuggagg B	c _s a _s a uGAU _s g gcauGcacuaugc gcg acagcuugga B	c _{sgaag} g uGAU _g g gcauGcacuaugc gcg gagggaguuc B	g _s c _s a _s g _s aca GccgaaagGCGaGugaGGuCu auccagc B	g _S a _S u _S a _S aaa GccgaaagGCGaGugaGGuCu gccgcag B	g _g g _g c _g a _g uag GccgaaagGCGaGugaGGuCu agcagga B	a _g g _{gggcg} cca GccgaaagGCGaGugaGGuCu ucccaua B	g _s g _s g _{sas} aag GccgaaagGCGaGugaGGuCu ccuacga B	g _s g _{sasus} cgg GccgaaagGCGaGugaGGuCu agaggag B	g _B agu _{gug} agg GccgaaagGCGaGugaGGuCu agaggug B	uggscggaaagGCGaGugaGGuCu gagggag B	a _g c _g a _g c _g gag GccgaaagGCGaGugaGGuCu agggguc B	c _g c _g u _g g _u aa GccgaaagGCGaGugaGGuCu acgagca B
19263 HBV-1873 CHz-7 amino stab1	19264 HBV-1875 CHz-7 amino stab1	19266 HBV-1876 CHz-7 amino stabl	19268 HBV-1880 CHz-7 amino stabl	19269 HBV-2382 CHz-7 amino stabl	19270 HBV-2384 CHz-7 amino stab1	19271 HBV-2385 CHz-7 amino stabl	19272 HBV-2422 CHz-7 amino stabl	19273 HBV-2830 CHz-7 amino stabl	20079 HBV-315 GCl.Rz-5/10 stab2	20080 HBV-381 GCl.Rz-5/10 stab2	20081 HBV-476 GCl.Rz-5/10 stab2	20082 HBV-694 GCl.Rz-5/10 stab2	20083 HBV-1265 GCl.Rz-5/10 stab2	20084 HBV-1601 GCl.Rz-5/10 stab2	20085 HBV-1881 GCl.Rz-5/10 stab2	20086 HBV-1883 GCl.Rz-5/10 stab2	20087 HBV-2388 GCl.Rz-5/10 stab2	20091 HBV-381 Zin.Rz-7 amino stab2	20092 HBV-392 Zin.Rz-7 amino stab2	20093 HBV-420 Zin.Rz-7 amino stab2	20094 HBV-648 Zin.Rz-7 amino stab2	20095 HBV-711 Zin.Rz-7 amino stab2	20096 HBV-1262 Zin.Rz-7 amino stab2	20097 HBV-1835 Zin.Rz-7 amino stab2	20098 HBV-2388 Zin.Rz-7 amino stab2	20099 HBV-192 Zin.Rz-7 amino stab2	20100 HBV-198 Zin.Rz-7 amino stab2
2449	2450	2451	2452	2453	2454	2455	2456	2457	2458	2459	2460	2461	2462	2463	2464	2465	2466	2467	2468	2469	2470	2471	2472	2473	2474	2475	2476
UCAAGCC U CCAAGCU	AAGCCUC C AAGCUGU	AGCCUCC A AGCUGUG	UCCAAGC U GUGCCUU	Þ	AGAACUC C CUCGCCU	GAACUCC C UCGCCUC	GCGUCGC A GAAGAUC	CAUAUUC U UGGGAAC	GCCAAAUUC G CAGUC	AUCGCUGGAU G UGUCU	unecccennu e uccuc	AGUGCCAUUU G UUCAG	cuccucuecc e aucca	CUUCACCUCU G CACGU	CCUCCAAGCU G UGCCU	UCCAAGCUGU G CCUUG	GAACUCCCUC G CCUCG	GCUGGAU G UGUCUGC	cueceec e ununauc	UCCUGCU G CUAUGCC	UAUGGGA G UGGGCCU	UCGUAGG G CUUUCCC	CUCCUCU G CCGAUCC	CACCUCU G CCUAAUC	cucceuc a ceuceca	GACCCCU G CUCGUGU	ugcucgu g uuacagg
1873	1875	1876	1880	2382	2384	2385	2422	2830	315	381	476	694	1265	1091	1881	1883	2388	381	392	420	648	711	1262	1835	2388	192	198

11062	11063	11064	11065	11066	11067	11068	11069	11070	11071	11072	11073	11074	11075	11076	11077	11078	11079	11080	11081	11082	11083
g _B g _B g _B cug GccgaaagGCGaGugaGGuCu gaauuuu B	c _s g _s c _s a _s ga GccgaaagGCGaGugaGGuCu acaucc B	င _{္မေ} င် _{ရွှေရွင} ္တေရအ GccgaaagGCGaGugagGGuCu acaucca B	a _g c _g g _g cg GccgaaagGCGaGugaGGuCu agacac B	ugagagagagagagagagagagagagagagagagagaga	a _B u _B a _B aa GccgaaagGCGaGugaGGuCu gccgca B	asuggeagg GccgaaagGCGaGugaGGuCu auagca B	g _e a _B u _B g _B agg GccgaaagGCGaGugaGGuCu auagcag B	a _{sasas} c _g ggg GccgaaagGCGaGugaGGuCu aacauac B	usasgaa GccgaaagGCGaGugaGGuCu aaacggg B	9 ₅ 9 ₅ c ₈ ca GccgaaagGCGaGugaGGuCu ucccau B	Csagcgugaa GccgaaagGCGaGugaGGuCu aaauggc B	c _S g _{agag} cca GccgaaagGCGaGugaGGuCu ugaacaa B	gsagugcgaaaagGCGaGugaGGuCu agagga B	ususcsaggcg GccgaaagGCGaGugaGGuCu cgacggg B	g 888 ag GccgaaagGCGaGugaGGuCu	a _S g _S g _B u _B gcg GccgaaagGCGaGugaGGuCu cccgugg B	g _g a _g a _g gca GccgaaagGCGaGugaGGuCu agacggg B	gsaggsagagg GccgaaagGCGaGugaGGuCu acagacg B	gggugggaag GccgaaagGCGaGugaGGuCu gaagugc B	a _B u _B u _B a _B gg GccgaaagGCGaGugaGGuCu agaggu B	a _g u _g a _g ggg GccgaaagGCGaGugaGGuCu aunuggu B
amino	amino	amino	amino	amino	amino	amino	amino	amino	amino	amino	amino	amino	amino	amino	amino	amino	amino	amino	amino	amino	amino
HBV-315 Zin.Rz-7 stab2	HBV-383 Zin.Rz-6 stab2	HBV-383 Zin.Rz-7 stab2	HBV-387 Zin.Rz-6 stab2	HBV-390 Zin.Rz-7 stab2	HBV-392 Zin.Rz-6 stab2	25 Zin.Rz-6	HBV-425 Zin.Rz-7 stab2	HBV-468 Zin.Rz-7 stab2	Zin.Rz-7	HBV-648 Zin.Rz-6 stab2	HBV-694 Zin.Rz-7 stab2	HBV-699 Zin.Rz-7 stab2	HBV-1262 Zin.Rz-6 stab2	HBV-1440 Zin.Rz-7 stab2	HBV-1526 Zin.Rz-6 stab2	HBV-1526 Zin.Rz-7 stab2	HBV-1557 Zin.Rz-7 stab2	HBV-1559 Zin.Rz-7 stab2	HBV-1590 Zin.Rz-7 stab2	HBV-1835 Zin.Rz-6 stab2	HBV-2311 Zin.Rz-7 stab2
	20102 F	20103 F	20104 F	20105 F	20106 E	20107 F	20108 F	20109 E		20111 E	20112 H	20113 H	20114 H	20115 H	20116 H		20118 H	20119 H	20120 H	20121 H	20122 H
2477	2478	2479	2480	2481	2482	2483	2484	2485	2486	2487	2488	2489	2490	2491	2492	2493	2494	2495	2496	2497	2498
AAAAUUC G CAGUCCC	GGAUGU G UCUGCG	uggaugu g ucugogg	guencu e ceeceu	gucuece e ceuuuna	UGCGGC G UUUUAU	UGCUAU G CCUCAU	CUGCUAU G CCUCAUC		cccenur e uccucua	AUGGGA G UGGGCC	GCCAUUU G UUCAGUG	UUGUUCA G UGGUUCG	UCCUCU G CCGAUC	CCCGUCG G CGCUGAA	CACGGG G CGCACC	ccacege e cecaccu	cccencn e neccnnc	cencuen e connonc	GCACUUC G CUUCACC	ACCUCU G CCUAAU	ACCAAAU G CCCCUAU
315	383	383	387	390	392	425	425	468	476	648	694	669	1262	1440	1526	1526	1557	1559	1590	1835	2311

11084	11085	11086	11087	11088	11089	11090	11091	11092	11093	11094	11095	11096	11097	11098	11099	11100	11101	11102	11103	11104	11105
u _g c _g ugug GccgaaagGCGaGugaGGuCu gacgcgg B	g _{gggagg} cca GccgaaagGCGaGugaGGuCu cagcagg B	c _s a _s c _{sgs} ag GccgaaagGCGaGugaGGuCu aggggu B	c _B u _B g _{uB} aa GccgaaagGCGaGugaGGuCu acgagc B	uscscsascca GccgaaagGCGaGugaGGuCu gagucua B	a _g aggu _g cca GccgaaagGCGaGugaGGuCu cacgagu B	gsgsagcgugagggggagggggugn gaanun B	c _s a _s g _a ca GccgaaagGCGaGugaGGuCu auccag B	a _g a _g c _g gccg GccgaaagGCGaGugaGGuCu agacaca B	a _s a _s a _s cg GccgaaagGCGaGugaGGuCu cgcaga B	u _g a _g g _{cg} ag GccgaaagGCGaGugaGGuCu aggaug B	g _E c _E a _B u _E ag GccgaaagGCGaGugaGGuCu agcagg B	a _s a _s c _s gg GccgaaagGCGaGugaGGuCu aacaua B	a _E g _E a _E g _S ga GccgaaagGCGaGugaGGuCu aaacgg B	a _g g _{ug} aa GccgaaagGCGaGugaGGuCu ugagcc B	ugaggugaggaggaggaggaggaggaggaggaggaggagg	a _g u _s g _s ga GccgaaagGCGaGugaGGuCu uaguaa B	agagusagaaagGCGaGugaGGuCu naguaaa B	C _S a _B a _B agg GccgaaagGCGaGugaGGuCu acuagua B	g _{sasas} c _s ca GccgaaagGCGaGugaGGuCu ugaaca B	usascsgsaa GccgaaagGCGaGugaGGuCu cacuga B	c _g u _g a _g c _s gaa GccgaaagGCGaGugaGGuCu cacugaa B
HBV-2420 Zin.Rz-7 amino stab2	HBV-65 Zin.Rz-7 amino stab2	HBV-192 Zin.Rz-6 amino stab2	HBV-198 Zin.Rz-6 amino stab2	HBV-258 Zin.Rz-7 amino stab2	HBV-261 Zin.Rz-7 amino stab2	HBV-315 Zin.Rz-6 amino stab2	HBV-381 Zin.Rz-6 amino stab2	HBV-387 Zin.Rz-7 amino stab2	HBV-390 Zin.Rz-6 amino stab2	HBV-417 Zin.Rz-6 amino stab2	HBV-420 Zin.Rz-6 amino stab2	HBV-468 Zin.Rz-6 amino stab2	HBV-476 Zin.Rz-6 amino stab2	HBV-677 Zin.Rz-6 amino stab2	HBV-677 Zin.Rz-7 amino stab2	HBV-685 Zin.Rz-6 amino stab2	HBV-685 Zin.Rz-7 amino stab2	HBV-687 Zin.Rz-7 amino stab2	HBV-699 Zin.Rz-6 amino stab2	HBV-702 Zin.Rz-6 amino stab2	HBV-702 Zin.Rz-7 amino stab2
20123 HBV-2 stab2		20125 HBV-1 stab2	20126 HBV-1 stab2	20127 HBV-2 stab2	20128 HBV-2 stab2	20129 HBV-3 stab2	20130 HBV-3 stab2			20133 HBV-4 stab2	20134 HBV-4 stab2	20135 HBV-4 stab2	20136 HBV-4 stab2	20137 HBV-6 stab2		20139 HBV-6 stab2	20140 HBV-6 stab2	20141 HBV-6 stab2	20142 HBV-6 stab2		20144 HBV-70 stab2
2499	2500	2501	2502	2503	2504	-	2506	2507	2508	2509	2510	2511	2512	2513	2514	2515	2516	2517	2518	2519	2520
CAGAAGA	ບ		g unacag	UAGACUC G UGGUGGA	ACUCGUG G UGGACUU	AAAUUC G CAGUCC	ueucue	ය යෙයෙහෙග	g countr		ccuecu e cuauec	UAUGUU G CCCGUU	ccenna e accaca	g unuacu	g uuuacua		UGCCAUU	UACUAGU G CCAUUUG	UGUUCA G UGGUUC	UCAGUG G UUCGUA	UNCAGUG G UUCGUAG
2420	65	192	198	258	261	315	381	387	390	417	420	468	476	677	677	685	685	687	669	702	702

11106	11107	11108	11109	11110	1111	11112	11113	11114	11115	11116	11117	11118	11119=	11120	11121	11122	11123	11124	11125	11126	11127
g _g g _g a _g ag GccgaaagGCGaGugaGGuCu ccuacg B	a _g a _g a _g ga GccgaaagGCGaGugaGGuCu ccacaa B	aggsu _B u _B gg GccgaaagGCGaGugaGGuCu gagaaa B	agagguguga GccgaaagGCGaGugaGGuCu gagaaag B	C _B a _B g _C gaaa GccgaaagGCGaGugaGGuCu acuuggc B	uscsasgscg GccgaaagGCGaGugaGGuCu cgacgg B	agususcaag GccgaaagGcGaGugaGGuCu gccgac B	g _g a _g u _g u _g cag GccgaaagGCGaGugaGGuCu gccgacg B	c _s a _s c _s a _s ga GccgaaagGCGaGugaGGuCu ggggag B	a _g a _g g _g ca GccgaaagGCGaGugaGGuCu agacgg B	a _g g _g a _g gg GccgaaagGCGaGugaGGuCu acagac B	g _g a _g a _g g _u g GccgaaagGCGaGugaGGuCu acacgg B	gguggagag GccgaaagGCGaGugaGGuCu gaagug B	c _g g _g u _g u _g ca GccgaaagGCGaGugaGGuCu gguggu B	uguggggg GccgaaagGCGaGugaGGuCu uugaaca B	c _g a _g a _g gca GccgaaagGCGaGugaGGuCu agcuugg B	c _s c _{sasag} g GccgaaagGCGaGugaGGuCu acagcu B	c _s c _s agg GccgaaagGCGaGugaGGuCu acagcuu B	ugaggggg GccgaaagGCGaGugaGGuCu annugg B	g _{Bug} c _{gug} aa GccgaaagGcGaGugaGGuCu aacagu B	aggggggg GccgaaagGCGaGugaGGuCu cugccu B	u _g a _{ggggg} gga GccgaaagGCGaGugaGGuCu cugccuc B
amino	amino	amino	amino	amino	amino	amino	amino	amino	amino	amino	amino	amino	amino	amino	amino	amino	amino	amino	amino	amino	amino
HBV-711 Zin.Rz-6 s stab2	HBV-1006 Zin.Rz-6 stab2	HBV-1103 Zin.Rz-6 stab2	HBV-1103 Zin.Rz-7 stab2	HBV-1184 Zin.Rz-7 stab2	HBV-1440 Zin.Rz-6 stab2	HBV-1442 Zin.Rz-6 stab2	HBV-1442 Zin.Rz-7 stab2	HBV-1553 Zin.Rz-6 stab2	HBV-1557 Zin.Rz-6 stab2	HBV-1559 Zin.Rz-6 stab2	HBV-1583 Zin.Rz-6 stab2	HBV-1590 Zin.Rz-6 stab2	HBV-1622 Zin.Rz-6 stab2	HBV-1870 Zin.Rz-7 stab2	HBV-1881 Zin.Rz-7 stab2	HBV-1883 Zin.Rz-6 stab2	HBV-1883 Zin.Rz-7 stab2	HBV-2311 Zin.Rz-6 stab2	HBV-2347 Zin.Rz-6 stab2	HBV-2364 Zin.Rz-6 stab2	HBV-2364 Zin.Rz-7 stab2
	20146	20147	20148	20149	20150	20151	20152		20154	20155	20126		20158	20159	20160	20161	20162	20163	20164	20165	20166
2521	2522	2523	2524	2525	2526	2527	2528	2529	2530	2531	2532	2533	2534	2535	2536	2537	2538	2539	2540	2541	2542
ט	unevee e ucuanu	UUUCUC G CCAACU	cuuucuc e ccaacuu	GCCAAGU G UUUGCUG	CCGUCG G CGCUGA	GUCGGC G CUGAAU	CGUCGGC G CUGAAUC	cucccc a ucuana	cceucu e ueccuu	gucuau a ccuucu	ccever e cacurc	cacuuc e cuucac	ACCACC G UGAACG	UGUUCAA G CCUCCAA	CCAAGCU G UGCCUUG	AGCUGU G CCUUGG	AAGCUGU G CCUUGGG	ccaaau e ccccua	ACUGUU G UUAGAC	AGGCAG G UCCCCU	GAGGCAG G UCCCCUA
711	1006	1103	1103	1184	1440	1442	1442	1553	1557	1559	1583	1590	1622	1870	1881	1883	1883	2311	2347	2364	2364

11128	11129	11130	11131	11132	11133	11134	11135	11136	11137	11138	11139	11140	11141	11142	11143	11144	11145	11146	11147	11148	11149	11150=	11151	11152	11153	11154	11155	111561	11157	11158
g _s c _s g _s agg GccgaaagGCGaGugaGGuCu gaggga B	csgsuscsug GccgaaagGCGaGugaGGuCu gaggcg B	csusgscsga GccgaaagGCGaGugaGGuCu gcggcg B	csususcsug GccgaaagGCGaGugaGGuCu gacgcg B	ugugcgca GccgaaagGCGaGugaGGuCu cuuaug B	gscsaggaca gga L ucccoucaagga L uccGGG auccagc B	asgsgscscca gga L ucccourdaagga L uccGGG ucccaua B	c _g c _g u _g gguaa gga L uc€cou€aagga L uc€GGG acgagca B	ascaac gga L ucccoucaagga L uccGGG agcgaua B	gsagcgan gga L ucccuucaagga L uccGGG cagcgau B	c _s c _s g _s c _s aga gga L uc€cuuCaagga L uc€6GG acaucca B	c _s g _s c _s a _s ga gga L uc <i>ccuu</i> Caagga L uc¢GGG acaucc B	g _S g _{cg} c _s ca gga L ucccouCaagga L uccGGG ucccau B	usgsasgcc gga L ucccovcaagga L uccGGG acuccca B	gsaggcc gga L ucccuucaagga L uccGGG acuccc B	c _s a _s c _s u _s gaa gga L uc¢¢vv¢aagga L uc¢6GG aaauggc B	c _s g _s a _s a _s cca gga L uc <i>CCUUC</i> aagga L ucCGGG ugaacaa B	ugascagaac gga L ucccoucaagga L uccGGG acugaac B	gsgagaga I ucccuucaagga I uccGGG cuacgaa B	L ucdGGG ccgugg B	9 _S 9 _E c _S 9 _E uu gga L ucccovcaagga L uccGGG acggug B	9 _S c ₈ u ₈ u ₅ gc gga L ucccoucaagga L uccGGG ugagug B	asgauscuu gga L ucccoucaagga L uccooo uucuagg B	aggsugucc gga L ucccovcaagga L uccGGG accuuau B	9898aggcca gga L ucccuucaagga L uccGGG cagcagg B	usgsgsagg I ucccoocaagga L uccGGG accago B	c _s u _s g _{sus} aa gga L uc <i>ccuuc</i> aagga L uccGGG acgagc B	asgsuscac gga L ucccoucaagga L uccGGG acgaguc B	asgsaguc gga L ucccoucaagga L uccGGG accacga B	c _B a _B c _B a _B uc gga L ucccovcaagga L uccGGG agcgau B	a _S c _S a _B c _S au gga L uc <i>CCUUC</i> aagga L uc <i>C</i> GGG cagcga B
20167 HBV-2388 Zin.Rz-6 amino stab2	20168 HBV-2393 Zin.Rz-6 amino stab2	20169 HBV-2417 Zin.Rz-6 amino stab2	20170 HBV-2420 Zin.Rz-6 amino stab2	20171 HBV-2474 Zin.Rz-6 amino stab2	20172 HBV-381 Amb.Rz-7 stab2	20173 HBV-648 Amb.Rz-7 stab2	20174 HBV-198 Amb.Rz-7 stab2	20175 HBV-377 Amb.Rz-7 stab2	20176 HBV-378 Amb.Rz-7 stab2	20177 HBV-383 Amb.Rz-7 stab2	20178 HBV-383 Amb.Rz-6 stab2	20179 HBV-648 Amb.Rz-6 stab2	20180 HBV-650 Amb.Rz-7 stab2	20181 HBV-650 Amb.Rz-6 stab2	20182 HBV-694 Amb.Rz-7 stab2	20183 HBV-699 Amb.Rz-7 stab2	20184 HBV-701 Amb.Rz-7 stab2	20185 HBV-710 Amb.Rz-7 stab2		20187 HBV-1624 Amb.Rz-6 stab2		20189 HBV-2375 Amb.Rz-7 stab2	20190 HBV-2476 Amb.Rz-7 stab2		20192 HBV-67 Amb.Rz-6 stab2	20193 HBV-198 Amb.Rz-6 stab2	20194 HBV-260 Amb.Rz-7 stab2	20195 HBV-263 Amb.Rz-7 stab2	20196 HBV-377 Amb.Rz-6 stab2	20197 HBV-378 Amb.Rz-6 stab2
2543	2544	2545	2546	2547	2467	2470	2476	2548	2549	2479	2478	2487	2550	1527	2488	2489	2552	2553	2554	2555	2556	2557	2558	2500	2559	2502	2560	2561	2562	2563
ucccuc e ccucec	CGCCUC G CAGACG	ტ	CGCGUC G CAGAAG	CAUAAG G UGGGAA	geuggau g ugueuge	UAUGGGA G UGGGCCU		ß	AUCGCUG G AUGUGUC	uggaugu g ucugceg	ggaugu g ucugcg	AUGGGA G UGGGCC	UGGGAGU G GGCCUCA	ט	ט		GUUCAGU G GUUCGUA	unceuae e ecurucc	CCACGG G GCGCAC	ט		CCUAGAA G AAGAACU	AUAAGGU G GGAAACU	ccuecue e ueecucc	GCUGGU G GCUCCA	හ	ט		AUCGCU G GAUGUG	ucecue e Aueueu
2388	2393	2417	2420	2474	381	648	198	377	378	383	383	648	650	650	694	669	701	710	1525	1624	2069	2375	2476	65	67	198	260	263	377	378

11159	11160	11161	11162	11163	11164	11165	11166	11167	11168	11169	11170	11111	11172	11173	11174	11175	11176	11177	11178	11179	11180	11181=	11182	11183	11184	1118時	11186	11187	11188	11189
a _{ggaagga} gga L ucccuucaagga L uccGGG aaacgg B	c _B u _B g _B aggc gga L ucCCUUCaagga L ucCGGG cacuccc B	ugaggugaaa gga L ucccoocaaga L uccGGG ugagcca B	agaguaga I ucccoocagga L uccess aguaaa B	csusascsgaa gga L ucccuucaagga L uccGGG cacugaa B	g sagaco gga L uccovocaagaa L uccogo uacgaac B	gsaga gga L ucccoucaagga L uccGGG cuacga B	ascscaaga L ucccuucaaga L uccGGG auccaua B	agagggca gga L ucccuucaagga L uccGGG agacgg B	c _s a _s a _s g _s gca gga L uc <i>CCUUC</i> aagga L ucCGGG agcuugg B	gsusc _s usaa gga L ucccuucaagga L uccGGG aacagu B	ggugugcguu gga L ucccuucaagga L uccGGG uucuag B	gsgsaggun gga L ucccovcaagga L uccGGG uucuuc B	aggsaguscun gga L ucccoocaagga L uccGGG ugcgacg B	usgsaggau gga L ucccoocaagga L uccGGG uucugc B	uguggaagaa gga L ucccoocaagga L uccGGG uucugcg B	gsusususc gga L ucccoucaagga L uccGGG accuua B	agagguguuc gga L ucccoucaagga L uccGGG caccuua B	aggsuguc gga L ucccoucaagga L uccGGG caccuu B	u _s c _e c _e a _B ugc cUGAuGaggccguuaggccGaa Acgugca B	c _B c _B a _S c _S cc cVGAuGaggccguuaggccGaa Aggcac B	c _s c _s a _s u _s gc cVGAuGaggcguuagccGaa Acgugc B	ugcgcgagugc cVGAuGaggcguuagccGaa Acgugca B	c _s c _s a _s c _s cc cVGAuGaggcguuagccGaa Aggcac B	g _g c _g c _g ccc cVGAuGaggcguuagccGaa Aggcaca B	gacugcg CUGAUGAggccguuaggccGAA Auuuugg B	ggaugca CUGAUGAggccguuaggccGAA Aggaaga B	uuaaccu CUGAUGAggccguuaggccGAA Accuccu B	uggaaag CUGAUGAggccgunaggccGAA Iguggag B	uggugag CUGAUGAggccgunaggccGAA Iacugga B	g _{sasas} auu cTGAuGagccguuaggcGaa Agagaag B
HBV-476 Amb.Rz-6 stab2	HBV-651 Amb.Rz-7 stab2	HBV-677 Amb.Rz-7 stab2	HBV-685 Amb.Rz-7 stab2	HBV-702 Amb.Rz-7 stab2	HBV-709 Amb.Rz-7 stab2	HBV-710 Amb.Rz-6 stab2	HBV-747 Amb.Rz-7 stab2	HBV-1557 Amb.Rz-6 stab2	HBV-1881 Amb.Rz-7 stab2	HBV-2347 Amb.Rz-6 stab2	HBV-2375 Amb.Rz-6 stab2	HBV-2378 Amb.Rz-6 stab2	HBV-2423 Amb.Rz-7 stab2	HBV-2426 Amb.Rz-6 stab2	HBV-2426 Amb.Rz-7 stab2	HBV-2476 Amb.Rz-6 stab2	HBV-2477 Amb.Rz-7 stab2	HBV-2477 Amb.Rz-6 stab2	HBV-1607 Rz-7 allyl stabl (7/4)	HBV-1887 Rz-6 allyl stabl (6/4)	HBV-1607 Rz-6 allyl stab1 (6/3)	HBV-1607 Rz-7 allyl stab1 (7/3)	HBV-1887 Rz-6 allyl stab1 (6/3)	HBV-1887 Rz-7 allyl stab1 (7/3)	HBV-313 Rz-7 Ome stabl	HBV-408 Rz-7 Ome stab1	HBV-1756 Rz-7 Ome stab1	HBV-10 CHz-7 Ome stabl	CHz-	HBV-273 Rz-7 allyl stabl (7/3-GUUA)
20198	20199	20200	20201	20202	20203	20204	20205	20206	20207	20208	20209	20210	20211	20212	20213	20214	20215	20216	20697	20698	20699	20700	20701	20702	22798	22799	22800	22770	22771	22645
2512	2564	2514	2516	2520	2565	2566	2567	2530	2536	2540	2568	2569	2570	2571	2572	2573	2574	2575	2576	2577	2374	2576	2577	2420	2346	2349	2353	2356	2357	2399
ccenn e nccncn	gggagug g gccucag	UGGCUCA G UUUACUA	UUVACUA G UGCCAUU	vucague e vucevae	G	uceuae e ecuuuc	UAUGGAU G AUGUGGU	ccencu e neccun	CCAAGCU G UGCCUUG	ACUGUU G UUAGAC	Ð	ტ	CGUCGCA G AAGAUCU	GCAGAA G AUCUCA	CGCAGAA G AUCUCAA	UAAGGU G GGAAAC	UNARGGUG G GANACUU	AAGGUG G GAAACU	UGCACGU C GCAUGGA	gueccu u gegueg	GCACGU C GCAUGG	UGCACGU C GCAUGGA	enecca a eeenee	ueueccu u eeeueec	CCAAAAU U CGCAGUC	UCUUCCU C UGCAUCC			UCCAGUC A CUCACCA	CUUCUCU C AAUUUUC
476	651	677	685	702	109	710	747	1557	1881	2347	2375	2378	2423	2426	2426	2476	2477	2477	1607	1887	1607	1607	1887	1887	313	408	1756	20	335	273

11190	11191	11192	11193	11194	11195	11196	11197	11198	11199	11200	11201	11202	11203期	11204	11205	11206	1120項目	11208	1120%	11210	11211	110101	11214	11215]	10834
g _g a _g a _g auu cUGAuGaggccguuaggccGaa Agagaag B	g _g a _g a _g auu cUGAuGagccgaaaggcGaa Agagaag B	g _s a _g a _s auu cUGAuGaggccgaaaggccGaa Agagaag B	a _g a _g a _g uu cUGAuGagccguuaggcGaa Agagaa B	a _B a _B a _B uu cUGAuGagccgaaaggcGaa Agagaa B	a _B a _B a _B uu cUGAuGaggccgaaaggccGaa Agagaa B	uggagga uGAUg gcauGcacuaugc gCg aacaggu B	gaggaga uGAUg gcauGcacuaugc gCg acaaagg B	aguagga uGAUg gcaudcacuaugc gCg augaaca B	aagaagu uGAUg gcauGcacuaugc gCg agaaggc B	guggagg uGAUg gcauGcacuaugc gCg aggagga B	ugaguga gccgaaaggCgagugaGGuCu uggagau B	uggagga gccgaaaggCgagugaGGuCu aacaggu B	caggaug gccgaaaggCgagugaGGuCu agaggaa B	gaggaga gccgaaaggCgagugaGGuCu acaaagg B	aaccuaa gccgaaaggCgagugaGGuCu cuccucc B	gaugcag CUGAUGAggccguuaggccGAA Igaagau B	augaaca CUGAUGAggccguuaggccGAA Iagauga B	aggagga CUGAUGAggccgunaggccGAA Iagcugc B	CUGAUGAggccguuaggccGAA Agcugac	AUGAggccguuaggccGAA Aaua	GGCTAGCTACAACGA	nagagan neorogen	GGCTAGCTACAACGA uqqaqqa	gaggaga GGCTACAACGA acaaagg B	c _s g _s a _g u _s gu cWAGuGacccgaaagggGaa AagaggB
HBV-273 Rz-7 allyl stab1 (7/4-GUUA)	HBV-273 Rz-7 allyl stabl (7/3-GAAA)	HBV-273 Rz-7 allyl stabl (7/4-GAAA)	HBV-273 Rz-6 allyl stabl (6/3-GUUA)	HBV-273 Rz-6 allyl stabl (6/3-GAAA)	HBV-273 Rz-6 allyl stab1 (6/4-GAAA)	HBV-350 GCl.Rz-7 5ribo stab3	HBV-1253 GCl.Rz-7 5ribo stab3	HBV-1856 GCl.Rz-7 5ribo stab3	HBV-1966 GCl.Rz-7 Sribo stab3	HBV-3132 GCl.Rz-7 5ribo stab3	HBV-332 Zin.Rz-7 amino stab4	HBV-350 Zin.Rz-7 amino stab4	HBV-410 Zin.Rz-7 amino stab4	HBV-1253 Zin.Rz-7 amino stab4	HBV-1754 Zin.Rz-7 amino stab4	HBV-407 CHz-7 Ome stabl	HBV-1848 CHz-7 Ome stabl		Ome	HBV-2706 Rz-7 Ome stabl	HBV-350 Dz-7 stab3	77.7	Dz-7	HBV-1253 Dz-7 stab3	SAC
22646	22648	22650	22644	22647	22649	22714	22715	22716	22717	22718	22742	22743	22744	22745	22746	22772	22773	22774	22801	22802	22966	22068	22969	22970	20599
2399	2399	2578	2578	2578	2579	2580	2581	2582	2583	2584	2579	2585	2580	2586	2587	2588	2589	2590	2591	2579	2584	2502	2580	2346	
COUCUCU C AAUUUUC		CUÚCUCU C AAUUUUC	UUCUCU C AAUUUU	UUCUCU C AAUUUU	UUCUCU C AAUUUU	ACCUGUU G UCCUCCA	ccnnnen e nancena	ивиисай в иссиаси	ซ	uccuccu e ccuccac	AUCÚCCA G UCACÚCA	ACCUGUU G UCCUCCA	unccucu a cauccua	ccurrier e ucuccuc	GGAGGAG G UUAGGUU	AUCUUCC U CUGCAUC		GCAGCUC C UCCUCCU	GUCAGCU A UGUCAAC	CCGUAUU A UCCAGAG	ACCUGUO G UCCUCCA			ccuundu a ucuccuc	
273	273	273	273	273	273	350	1253	1856	1966	3132	332	350	410	1253	1754	407	1848	3124	2165	2706	333	1840	358	1253	

 $\underline{UNDERLINE} = DEOXY$ lower case = 2'-O-methyl UPPER CASE = RIBO

I = inosine

s = phosphorothioate linkage

B = inverted deoxyabasic residue U = 2'-deoxy-2'-C-allyl Uridine U = 2'-deoxy-2'-amino Uridine C = 2'-deoxy-2'-amino Cytidine

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Table XII: Group Designation and Dosage levels for HBV transgenic mouse study

Group	Compound	Dose	Number of Mice	Duration of Treatment
1	RPI.18341 (site 273)	100 mg/kg/day*	10F	14 days
2	RPI.18371 (site 1833)	100 mg/kg/day*	10F	14 days
3	RPI.18418 (site 1873)	100 mg/kg/day*	10F	14 days
4	RPI.18372 (site 1874)	100 mg/kg/day*	10F	14 days
5	Saline control	100 mg/kg/day*	10F	14 days
6	Untreated		10F	0 days

^{*}administered via sc infusion using Alzet® mini-osmotic pumps

TABLE XIII: GROUP DESIGNATION AND DOSAGE LEVELS FOR HBV TRANSGENIC MOUSE STUDY

Group	Compound	Dose	Number of Mice	Duration of Treatment
1	RPI.18341 (site 273)	100 mg/kg/day*	15 (M or F)	14 days
2	RPI.18341 (site 273)	30 mg/kg/day*	15 (M or F)	14 days
3	RPI.18341 (site 273)	10 mg/kg/day*	15 (M or F)	14 days
4	RPI.18371 site 1833	100 mg/kg/day*	15 (M or F)	14 days
5	RPI.18371 site 1833	30 mg/kg/day*	15 (M or F)	14 days
6	RPI.18371 site 1833	10 mg/kg/day*	15 (M or F)	14 days
7	SAC (RPI.20599)	100 mg/kg/day*	15 (M or F)	14 days
8	SAC (RPI.20599)	30 mg/kg/day*	15 (M or F)	14 days
9	SAC (RPI.20599)	10 mg/kg/day*	15 (M or F)	14 days
10	Saline control	12 μl/day*	15 (M or F)	14 days
11	3TC® control	50 mg/kg/day, PO	15 (M or F)	14 days

^{*}administered via sc infusion using Alzet® mini-osmotic pumps

Table XIV: HBV RT primer Decoy sequences

Length	Decoy Sequence	Seq ID No.
4	AUUC	11216
4	CAUU	11217
4	UCAU	11218
4	UUCA	11219
5	AUUCA	11220
5	CAUUC	11221
5	UCAUU	11222
5	UUCAU	11223
6	AUUCAU	11224
6	CAUUCA	11225
6	UCAUUC	11226
6	UUCAUU	11227
7	AUUCAUU	11228
7	CAUUCAU	11229
7	UCAUUCA	11230
7	UUCAUUC	11231
8	AUUCAUUC	11232
8	CAUUCAUU	11233
8	UCAUUCAU	11234
8	UUCAUUCA	11235
9	AUUCAUUCA	11236
9	CAUUCAUUC	11237
9	UCAUUCAUU	11238
9	UUCAUUCAU	11239
10	AUUCAUUCAU	11240
10	CAUUCAUUCA	11241
10	UCAUUCAUUC	11242
10	UUCAUUCAUU	11243
11	AUUCAUUCAUU	11244
11	CAUUCAUUCAU	11245
11	UCAUUCAUUCA	11246
11	UUCAUUCAUUC	11247
12	AUUCAUUC	11248
12	CAUUCAUUCAUU	11249
12	UCAUUCAUUCAU	11250
12	UUCAUUCAUUCA	11251
13	AUUCAUUCAUUCA	11252
13	CAUUCAUUCAUUC	11253
13	UCAUUCAUUCAUU	11254
13	UUCAUUCAUUCAU	11255
14	AUUCAUUCAU	11256
14	CAUUCAUUCA	11257
14	UCAUUCAUUC	11258
14	UUCAUUCAUU	11259
15	AUUCAUUCAUU	11260
15	CAUUCAUUCAU	11261

15	TICATITICA ITICA	41050
15	UCAUUCAUUCA	11262
15	UUCAUUCAUUC	11263
16	AUUCAUUCAUUC	11264
16	CAUUCAUUCAUU	11265
16	UCAUUCAUUCAU	11266
16	UUCAUUCAUUCA	11267
17	AUUCAUUCAUUCA	11268
17	CAUUCAUUCAUUC	11269
17	UCAUUCAUUCAUU	11270
17	UUCAUUCAUUCAU	11271
18	AUUCAUUCAUUCAU	11272
18	CAUUCAUUCAUUCA	11273
18	UCAUUCAUUCAUUC	11274
18	UUCAUUCAUUCAUU	11275
19	AUUCAUUCAUUCAUU	11276
19	CAUUCAUUCAUUCAU	11277
19	UCAUUCAUUCAUUCA	11278
. 19	UUCAUUCAUUCAUUC	11279
20	AUUCAUUCAUUCAUUC	11280
20	CAUUCAUUCAUUCAUU	11281
20	UCAUUCAUUCAUUCAU	11282
20	UUCAUUCAUUCAUUCA	11283
21	AUUCAUUCAUUCAUUCA	11284
21	CAUUCAUUCAUUCAUUC	11285
21	UCAUUCAUUCAUUCAUU	11286
21	UUCAUUCAUUCAUUCAU	11287
22	CAUUCAUUCAUUCAUUCA	11288
22	UCAUUCAUUCAUUCAUUC	11289
22	UUCAUUCAUUCAUUCAUU	11290
23	UCAUUCAUUCAUUCAUUCA	11291
23	UUCAUUCAUUCAUUCAUUC	11292
24	UUCAUUCAUUCAUUCAUUCA	11293

Table XV: Synthetic Nucleic acid molecules

RPI#	Alias	Sequence	SeqID
24961	HBV DR1 2'Oallyl P=S	gscsasgsasgsgsusgsasasB	11294
24997	HBV DR1 2'Oallyl P=S control	a _s a _s g _s u _s g _s g _s a _s g _s a _s c _s g _s B	11295
	HBV 1866-1869 1x 2'Oallyl		
24956	P=S	u _s u _s c _s a _s B	11296
	HBV 1866-1869 1x 2'Oallyl	2 C H H B	
24992	P=S control	a _s c _s u _s u _s B	11297
24941	HBV 1866-1869 2x 2'Oallyl P=S	u _s u _s c _s a _s u _s u _s c _s a _s B	11000
24341	HBV 1866-1869 2x 2'Oallyl		11298
24959	P=S control	a _s c _s u _s u _s a _s c _s u _s u _s B	11299
	HBV 1866-1869 3x 2'Oallyl		
24944	P=S	u _s u _s c _s a _s u _s u _s c _s a _s B	11300
	HBV 1866-1869 3x 2'Oallyl		
24962	P=S control	a _s c _s u _s u _s a _s c _s u _s u _s a _s c _s u _s u _s B	11301
24945	HBV 1866-1869 4x 2'Oallyl P=S	u _s u _s c _s a _s u _s u _s c _s a _s u _s u _s c _s a _s B	11302
24343	HBV 1866-1869 4x 2'Oallyl		11302
24963	P=S control	a _s c _s u _s u _s a _s c _s u _s u _s a _s c _s u _s u _s s	11303
24938	HBV 1866-1869 2'Oallyl P=S	u _s g _s a _s a _s B	11304
21330	HBV 1866-1869 2'Oallyl P=S		11301
24974	control	a _s a _s g _s u _s B	11305
24940	HBV 1866-1872 2'Oallyl P=S	g _s c _s u _s u _s g _s a _s a _s B	11306
	HBV 1866-1872 2'Oallyl P=S		
24958	control	a _s a _s g _s u _s u _s c _s g _s B	11307
24943	HBV 1866-1876 2'Oallyl P=S	g _s g _s a _s g _s g _s c _s u _s u _s g _s a _s aB	11308
	HBV 1866-1876 2'Oallyl P=S		
24979	control	$a_s a_s g_s u_s u_s c_s g_s g_s a_s g_s g_s B$	11309
		g _S a _S a _S a _S auu c <u>u</u> GAuGaggccguuaggccGaa	
18341	HBV-273 UH.Rz-7 allyl stab1	Agagaag B	10887
	HBV-273 UH.Rz-7 allyl stab1	a _s a _s u _s g _s agg cUAGuGacgccguuaggcgGaa	
24588	inact3 scram1 (GUUA SAC)	Aaaugaa B	11310
24929	HBV 1866-1969 2'Omethyl HBV 1866-1969 2'Omethyl	ugaaB	11311
24965	control	aaguB	11312
24934	HBV 1866-1876 2'Omethyl	ggaggcuugaaB	11313
	HBV 1866-1876 2'Omethyl		T
24970	control	aaguucggaggB	11314
24976	HBV 1866-1872 2'Omethyl	gcuugaaB	11315
	HBV 1866-1872 2'Omethyl	_	
24949	control	aaguucgB	11316
24952	HBV DR1 2'Omethyl HBV DR1 2'Omethyl control	gcagaggugaaB	11317
24988	HBV 1866-1869 1x 2'Omethyl	aaguggagacgB uucaB	11318
2434/	HBV 1866-1869 1x 2'Omethyl	uucab	11319
24983	control	acuuB	11320
24986	HBV 1866-1869 2x 2'Omethyl	uucauucaB	11321
	HBV 1866-1869 2x 2'Omethyl		
24950	control	acuuacuuB	11322

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24989	HBV 1866-1869 3x 2'Omethyl	uucauucauucaB	11323
	HBV 1866-1869 3x 2'Omethyl		
24953	control	acuuacuuacuuB	11324
24936	HBV 1866-1869 4x 2'Omethyl	uucauucauucaB	11325
	HBV 1866-1869 4x 2'Omethyl		
24954	control	acuuacuuacuuB	11326
25639	HBV 5' EnI pos OMe P=S	$B u_s u_s u_s c_s u_s a_s a_s g_s u_s a_s a_s a_s c_s a_s g_s u B$	11327
25640	HBV 5' EnI neg OMe P=S	$ B a_s c_s u_s g_s u_s u_s u_s a_s c_s u_s u_s a_s g_s a_s a_s a_s B $	11328
25641	HBV 5' EnI sc OMe P=S	$B a_{s}a_{s}g_{s}u_{s}a_{s}a_{s}c_{s}u_{s}c_{s}u_{s}a_{s}u_{s}g_{s}u_{s}u_{s}a B$	11329
		В	
		$u_s a_s c_s a_s u_s g_s a_s a_s c_s c_s u_s u_s u_s a_s c_s c_s c_s c_s c_s c_s c_s c_s c_s c$	
25642	HBV 3' EnI pos OMe P=S	В	11330
		B gsgsgsusasasasgsgsususcsasusgsusa	
25643	HBV 3' EnI neg OMe P=S	В	11331
		В	
		$a_s c_s c_s u_s a_s u_s c_s g_s c_s c_s u_s a_s c_s u_s c_s u_s a_s a$	
25644	HBV 3' EnI pos sc OMe P=S	В	11332
		B u _s g _s a _s u _s a _s g _s c _s g _s g _s a _s u _s g _s a _s g _s a _s u _s u	
25645	HBV 5' EnI neg sc OMe P=S	В	11333
25646	HBV DR1 pos OMe P=S	B u _s u _s c _s a _s c _s c _s u _s c _s u _s g _s c B	11334
25651	HBV 5' EnI pos Oallyl P=S	B u _s u _s u _s c _s u _s a _s a _s g _s u _s a _s a _s a _s c _s a _s g _s u B	11335
25652	HBV 5' EnI neg Oallyl P=S	B a _s c _s u _s g _s u _s u _s u _s a _s c _s u _s u _s a _s g _s a _s a _s a B	11336
25653	HBV 5' EnI sc Oallyl P=S	$\mathtt{B} \ \mathtt{a_s} \mathtt{a_s} \mathtt{g_s} \mathtt{u_s} \mathtt{a_s} \mathtt{a_s} \mathtt{c_s} \mathtt{u_s} \mathtt{c_s} \mathtt{u_s} \mathtt{a_s} \mathtt{u_s} \mathtt{g_s} \mathtt{u_s} \mathtt{u_s} \mathtt{a} \ \mathtt{B}$	11337
		В	
		u _s a _s c _s a _s u _s g _s a _s a _s c _s c _s c _s u _s u _s u _s a _s c _s c _s c _s c	
25654	HBV 3' EnI pos Oallyl P=S	В	11338
		B gsgsgsusasasasgsgsususcsasusgsusa	
25655	HBV 3' EnI neg Oallyl P=S	В	11339
		В	
		a _s c _s c _s u _s a _s u _s c _s g _s c _s c _s u _s a _s c _s u _s a _s a	
25656	HBV 3' EnI pos sc Oallyl P=S	В	11340
		B usgsasusasgscsgsgsasusgsasgsasusu	
25657	HBV 5' EnI neg sc Oallyl P=S	В	11341
25658	HBV DR1 pos Oallyl P=S	B u _s u _s c _s a _s c _s c _s u _s c _s u _s g _s c B	11342

a, g, c, u = all 2'-O-allyl a, g, c, u = 2'-O-methyl U= 2'-C-allyl Uridine S= phosphorothioate B= inverted deoxyabasic

Table XVI: Comparison of Tumor Weight to HBV DNA concentration in mice inoculated with HepG2.2.15 cells

Time point	HBV DNA	Tumor weight
(days)	copies/mL serum	(milligrams)
1	Below detection	No tumor
1	Below detection	No tumor
1	Below detection	No tumor
11	Below detection	No tumor
7	Below detection	No tumor
7	Below detection	No tumor
7	Below detection	No tumor
7	Below detection	No tumor
14	Below detection	No tumor
14	Below detection	No tumor
14	Below detection	No tumor
14	Below detection	No tumor
35	356	33
35	125083	167
35	578	No tumor
35	386	56
42	493	No tumor
42	114431	790
42	94025	359
42	111882	647
49	189885	816
49	Below detection	No tumor
49	293	90
49	41477	2521

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Table XVII: Comparison of Tumor Weight to HBV DNA concentration in mice inoculated with G418 resistant HepG2.2.15 cells

Time point (days)	HBV DNA copies/mL serum	Tumor weight (milligrams)
37	7000	1120.0
37	no sample	no sample
37	400000	1962.3
37	26000	558.5
37	380000	2286.0
37	100	317.2
37	52000	1429.0
37	100	427.4
37	26000	813.2
37	1400	631.6
37	186000	1101.5
37	134000	1573.0
37	17800	1040.0
37	16600	1327.2
37	8200	275.7
37	68000	632.8
37	24000	1090.0
37	58000	1082.7
37	12400	1116.3
37	100	763.3

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Table XVIII: HCV DNAzyme and Substrate Sequence

Pos	Substrate	SEQ	DNAZYME	SEQ
		ID		ID
10	UGGGGGCG A CACUCCAC	2594	GTGGAGTG GGCTAGCTACAACGA CGCCCCCA	11343
12	GGGGCGAC A CUCCACCA	2595	TGGTGGAG GGCTAGCTACAACGA GTCGCCCC	11344
17	GACACUCC A CCAUAGAU	2596	ATCTATGG GGCTAGCTACAACGA GGAGTGTC	11345
20	ACUCCACC A UAGAUCAC	2597	GTGATCTA GGCTAGCTACAACGA GGTGGAGT	11346
24	CACCAUAG A UCACUCCC	2598	GGGAGTGA GGCTAGCTACAACGA CTATGGTG	11347
27	CAUAGAUC A CUCCCCUG	2599	CAGGGGAG GGCTAGCTACAACGA GATCTATG	11348
35	ACUCCCCU G UGAGGAAC	2600	GTTCCTCA GGCTAGCTACAACGA AGGGGAGT	11349
42	UGUGAGGA A CUACUGUC	2601	GACAGTAG GGCTAGCTACAACGA TCCTCACA	11350
45	GAGGAACU A CUGUCUUC	2602	GAAGACAG GGCTAGCTACAACGA AGTTCCTC	11351
48	GAACUACU G UCUUCACG	2603	CGTGAAGA GGCTAGCTACAACGA AGTAGTTC	11352
54	CUGUCUUC A CGCAGAAA	2604	TTTCTGCG GGCTAGCTACAACGA GAAGACAG	11353
56	GUCUUCAC G CAGAAAGC	2605	GCTTTCTG GGCTAGCTACAACGA GTGAAGAC	11354
63	CGCAGAAA G CGUCUAGC	2606	GCTAGACG GGCTAGCTACAACGA TTTCTGCG	11355
65	CAGAAAGC G UCUAGCCA	2607	TGGCTAGA GGCTAGCTACAACGA GCTTTCTG	11356
70	AGCGUCUA G CCAUGGCG	2608	CGCCATGG GGCTAGCTACAACGA TAGACGCT	11357
73	GUCUAGCC A UGGCGUUA	2609	TAACGCCA GGCTAGCTACAACGA GGCTAGAC	11358
76	UAGCCAUG G CGUUAGUA	2610	TACTAACG GGCTAGCTACAACGA CATGGCTA	11359
78	GCCAUGGC G UUAGUAUG	2611	CATACTAA GGCTAGCTACAACGA GCCATGGC	11360
82	UGGCGUUA G UAUGAGUG	2612	CACTCATA GGCTAGCTACAACGA TAACGCCA	11361
84	GCGUUAGU A UGAGUGUC	2613	GACACTCA GGCTAGCTACAACGA ACTAACGC	11362
88	UAGUAUGA G UGUCGUGC	2614	GCACGACA GGCTAGCTACAACGA TCATACTA	11363
90	GUAUGAGU G UCGUGCAG	2615	CTGCACGA GGCTAGCTACAACGA ACTCATAC	11364
93	UGAGUGUC G UGCAGCCU	2616	AGGCTGCA GGCTAGCTACAACGA GACACTCA	11365
95	AGUGUCGU G CAGCCUCC	2617	GGAGGCTG GGCTAGCTACAACGA ACGACACT	11366
98	GUCGUGCA G CCUCCAGG	2618	CCTGGAGG GGCTAGCTACAACGA TGCACGAC	11367
107	CCUCCAGG A CCCCCCCU	2619	AGGGGGG GGCTAGCTACAACGA CCTGGAGG	11368
125	CCGGGAGA G CCAUAGUG	2620	CACTATGG GGCTAGCTACAACGA TCTCCCGG	11369
128	GGAGAGCC A UAGUGGUC	2621	GACCACTA GGCTAGCTACAACGA GGCTCTCC	11370
131	GAGCCAUA G UGGUCUGC	2622	GCAGACCA GGCTAGCTACAACGA TATGGCTC	11371
134	CCAUAGUG G UCUGCGGA	2623	TCCGCAGA GGCTAGCTACAACGA CACTATGG	11372
138	AGUGGUCU G CGGAACCG	2624	CGGTTCCG GGCTAGCTACAACGA AGACCACT	11373
143	UCUGCGGA A CCGGUGAG	2625	CTCACCGG GGCTAGCTACAACGA TCCGCAGA	11374
147	CGGAACCG G UGAGUACA	2626	TGTACTCA GGCTAGCTACAACGA CGGTTCCG	11375
151	ACCGGUGA G UACACCGG	2627	CCGGTGTA GGCTAGCTACAACGA TCACCGGT	11376
153	CGGUGAGU A CACCGGAA	2628	TTCCGGTG GGCTAGCTACAACGA ACTCACCG	11377
155	GUGAGUAC A CCGGAAUU	2629	AATTCCGG GGCTAGCTACAACGA GTACTCAC	11378
161	ACACCGGA A UUGCCAGG	2630	CCTGGCAA GGCTAGCTACAACGA TCCGGTGT	11379
164	CCGGAAUU G CCAGGACG	2631	CGTCCTGG GGCTAGCTACAACGA AATTCCGG	11380
170	UUGCCAGG A CGACCGGG	2632	CCCGGTCG GGCTAGCTACAACGA CCTGGCAA	11381
173	CCAGGACG A CCGGGUCC	2633	GGACCCGG GGCTAGCTACAACGA CGTCCTGG	11382
178	ACGACCGG G UCCUUUCU	2634	AGAAAGGA GGCTAGCTACAACGA CCGGTCGT	11383
190	UUUCUUGG A UCAACCCG	2635	CGGGTTGA GGCTAGCTACAACGA CCAAGAAA	11384
194	UUGGAUCA A CCCGCUCA	2636	TGAGCGGG GGCTAGCTACAACGA TGATCCAA	11385
198	AUCAACCC G CUCAAUGC	2637	GCATTGAG GGCTAGCTACAACGA GGGTTGAT	11386
203	CCCGCUCA A UGCCUGGA	2638	TCCAGGCA GGCTAGCTACAACGA TGAGCGGG	11387
205	CGCUCAAU G CCUGGAGA	2639	TCTCCAGG GGCTAGCTACAACGA ATTGAGCG	11388
213	GCCUGGAG A UUUGGGCG	2640	CGCCCAAA GGCTAGCTACAACGA CTCCAGGC	11389
219	AGAUUUGG G CGUGCCCC	2641	GGGGCACG GGCTAGCTACAACGA CCAAATCT	11390
221	AUUUGGGC G UGCCCCCG	2642	CGGGGCA GGCTAGCTACAACGA GCCCAAAT	11391
223	UUGGGCGU G CCCCCGCG	2643	CGCGGGG GGCTAGCTACAACGA ACGCCCAA	11392
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229	GUGCCCC G CGAGACUG	2644	CAGTCTCG GGCTAGCTACAACGA GGGGGCAC	11393
234	CCCGCGAG A CUGCUAGC	2645	GCTAGCAG GGCTAGCTACAACGA CTCGCGGG	11394
237	GCGAGACU G CUAGCCGA	2646	TCGGCTAG GGCTAGCTACAACGA AGTCTCGC	11395
241	GACUGCUA G CCGAGUAG	2647	CTACTCGG GGCTAGCTACAACGA TAGCAGTC	11396
246	CUAGCCGA G UAGUGUUG	2648	CAACACTA GGCTAGCTACAACGA TCGGCTAG	11397
249	GCCGAGUA G UGUUGGGU	2649	ACCCAACA GGCTAGCTACAACGA TACTCGGC	11398
251	CGAGUAGU G UUGGGUCG	2650	CGACCCAA GGCTAGCTACAACGA ACTACTCG	11399
256	AGUGUUGG G UCGCGAAA	2651	TTTCGCGA GGCTAGCTACAACGA CCAACACT	11400
259	GUUGGGUC G CGAAAGGC	2652	GCCTTTCG GGCTAGCTACAACGA GACCCAAC	11401
266	CGCGAAAG G CCUUGUGG	2653	CCACAAGG GGCTAGCTACAACGA CTTTCGCG	11402
271	AAGGCCUU G UGGUACUG	2654	CAGTACCA GGCTAGCTACAACGA AAGGCCTT	11403
274	GCCUUGUG G UACUGCCU	2655	AGGCAGTA GGCTAGCTACAACGA CACAAGGC	11404
276	CUUGUGGU A CUGCCUGA	2656	TCAGGCAG GGCTAGCTACAACGA ACCACAAG	11405
279	GUGGUACU G CCUGAUAG	2657	CTATCAGG GGCTAGCTACAACGA AGTACCAC	11406
284	ACUGCCUG A UAGGGUGC	2658	GCACCCTA GGCTAGCTACAACGA CAGGCAGT	11407
289	CUGAUAGG G UGCUUGCG	2659	CGCAAGCA GGCTAGCTACAACGA CCTATCAG	11408
291	GAUAGGGU G CUUGCGAG	2660	CTCGCAAG GGCTAGCTACAACGA ACCCTATC	11409
295	GGGUGCUU G CGAGUGCC	2661	GGCACTCG GGCTAGCTACAACGA AAGCACCC	11410
299	GCUUGCGA G UGCCCCGG	2662	CCGGGGCA GGCTAGCTACAACGA TCGCAAGC	11411
301	UUGCGAGU G CCCCGGGA	2663	TCCCGGGG GGCTAGCTACAACGA ACTCGCAA	11412
311	CCCGGGAG G UCUCGUAG	2664	CTACGAGA GGCTAGCTACAACGA CTCCCGGG	11413
316	GAGGUCUC G UAGACCGU	2665	ACGGTCTA GGCTAGCTACAACGA GAGACCTC	11413
	UCUCGUAG A CCGUGCAC	2666	GTGCACGG GGCTAGCTACAACGA CTACGAGA	
320				11415
323	CGUAGACC G UGCACCAU	2667	ATGGTGCA GGCTAGCTACAACGA GGTCTACG	11416
325	UAGACCGU G CACCAUGA	2668	TCATGGTG GGCTAGCTACAACGA ACGGTCTA	11417
327	GACCGUGC A CCAUGAGC	2669	GCTCATGG GGCTAGCTACAACGA GCACGGTC	11418
330	CGUGCACC A UGAGCACG	2670	CGTGCTCA GGCTAGCTACAACGA GGTGCACG	11419
334	CACCAUGA G CACGAAUC	2671	GATTCGTG GGCTAGCTACAACGA TCATGGTG	11420
336	CCAUGAGC A CGAAUCCU	2672	AGGATTCG GGCTAGCTACAACGA GCTCATGG	11421
340	GAGCACGA A UCCUAAAC	2673	GTTTAGGA GGCTAGCTACAACGA TCGTGCTC	11422
347	AAUCCUAA A CCUCAAAG	2674	CTTTGAGG GGCTAGCTACAACGA TTAGGATT	11423
360	AAAGAAAA A CCAAACGU	2675	ACGTTTGG GGCTAGCTACAACGA TTTTCTTT	11424
365	AAAACCAA A CGUAACAC	2676	GTGTTACG GGCTAGCTACAACGA TTGGTTTT	11425
367	AACCAAAC G UAACACCA	2677	TGGTGTTA GGCTAGCTACAACGA GTTTGGTT	11426
370	CAAACGUA A CACCAACC	2678	GGTTGGTG GGCTAGCTACAACGA TACGTTTG	11427
372	AACGUAAC A CCAACCGC	2679	GCGGTTGG GGCTAGCTACAACGA GTTACGTT	11428
376	UAACACCA A CCGCCGCC	2680	GGCGGCGG GGCTAGCTACAACGA TGGTGTTA	11429
379	CACCAACC G CCGCCCAC	2681	GTGGGCGG GGCTAGCTACAACGA GGTTGGTG	11430
382	CAACCGCC G CCCACAGG	2682	CCTGTGGG GGCTAGCTACAACGA GGCGGTTG	11431
386	CGCCGCCC A CAGGACGU	2683	ACGTCCTG GGCTAGCTACAACGA GGGCGGCG	11432
391	CCCACAGG A CGUCAAGU	2684	ACTTGACG GGCTAGCTACAACGA CCTGTGGG	11433
393	CACAGGAC G UCAAGUUC	2685	GAACTTGA GGCTAGCTACAACGA GTCCTGTG	11434
398	GACGUCAA G UUCCCGGG	2686	CCCGGGAA GGCTAGCTACAACGA TTGACGTC	11435
406	GUUCCCGG G CGGUGGUC	2687	GACCACCG GGCTAGCTACAACGA CCGGGAAC	11436
409	CCCGGGCG G UGGUCAGA	2688	TCTGACCA GGCTAGCTACAACGA CGCCCGGG	11437
412	GGGCGGUG G UCAGAUCG	2689	CGATCTGA GGCTAGCTACAACGA CACCGCCC	11438
417	GUGGUCAG A UCGUUGGU	2690	ACCAACGA GGCTAGCTACAACGA CTGACCAC	11439
420	GUCAGAUC G UUGGUGGA	2691	TCCACCAA GGCTAGCTACAACGA GATCTGAC	11440
424	GAUCGUUG G UGGAGUUU	2692	AAACTCCA GGCTAGCTACAACGA CAACGATC	11441
429	UUGGUGGA G UUUACCUG	2693	CAGGTAAA GGCTAGCTACAACGA TCCACCAA	11442
433	UGGAGUUU A CCUGUUGC	2694	GCAACAGG GGCTAGCTACAACGA AAACTCCA	11443
437	GUUUACCU G UUGCCGCG	2695	CGCGGCAA GGCTAGCTACAACGA AGGTAAAC	11444
440	UACCUGUU G CCGCGCAG	2696	CTGCGCGG GGCTAGCTACAACGA AACAGGTA	11445
443	CUGUUGCC G CGCAGGGG			
445	- · · · · · · · · · · · · · · · · · · ·	2697	CCCCTGCG GGCTAGCTACAACGA GGCAACAG	11446
	GUUGCCGC G CAGGGGCC	2698	GGCCCCTG GGCTAGCTACAACGA GCGGCAAC	11447
451	GCGCAGGG G CCCCAGGU	2699	ACCTGGGG GGCTAGCTACAACGA CCCTGCGC	11448

458				<u>, , , , , , , , , , , , , , , , , , , </u>	
467	458	GGCCCCAG G UUGGGUGU	2700	ACACCCAA GGCTAGCTACAACGA CTGGGGCC	11449
467 UNGGUUGU G CGCCGAC 2703 GTCCCCCG GGCTAGCTACACAA CAACCCA 11452 469 GGGUUGC G CGCAGAUN 2704 TAGTCGCG GGCTAGCTACAACGA GCACACCC 11453 471 GUGUIGCCG G CGCAUAGG 2705 CCTAGTCG GGCTAGCTACAACGA GCGCACAC 11453 474 UGCGCGCG A CUAGGAAA G 2706 CTTCCTAG GGCTAGCTACAACGA CGCGCCCA 11454 474 UGCGCGCG A CUACGAAA G 2706 CTTCCTAG GGCTAGCTACAACGA CGCGCCCA 11455 483 CUAGGAAA A CUUCCGAG 2707 CTCGAGAG GGCTAGCTACAACGA CGCGCCCA 11455 491 ACUUCCGA G CGGUCGCA 2708 TGCGACA GGCTAGCTACAACGA CTTCCTAG 11457 494 UCCGAGCC G UCCCAACC 2709 GGTTGCGA GGCTAGCTACAACGA CTGCCAGA 11457 497 GAGCGGU C CACCCUGU G 2710 GGAGGTTG GGCTAGCTACAACGA GCCGCCG 11459 500 CGGUCGCA C CCUCGUGG 2711 CCACGAGG GGCTAGCTACAACGA GCCGCCCG 11459 500 CGGUCGCA CCUCGUGG 2711 CCACGAGG GGCTAGCTACAACGA GACGCCC 11461 512 CGUGGAGA CCUCGUGG 2712 CCACGAGG GGCTAGCTACAACGA GACGCCC 11461 512 CGUGGAGA CCUAGUAC 2713 GGTTGCG GGCTAGCTACAACGA GACGCCC 11462 515 GGAACGC C 2713 GGTTGCG GGCTAGCTACAACGA CTTCCAG 11462 515 GGAAGCG A CAACCUAU 2714 ATAGGTTC GCCTAGCTACAACGA CTTCCAG 11462 516 GGAAGCG C ACACCUAU 2714 ATAGGTTC GCCTAGCTACAACGA CTTCCAG 11462 517 GGCACACC C 2715 GGGATAGC GCCTACCTACAACGA CTTCCAG 11462 518 AGGCGACA CCUAGCC 2715 GGGTAGCTACAACGA AGGTTTCC 11463 519 GGUCCCCAG C 2716 CTTGGGGA GGCTAGCTACAACGA AGGTTTCC 11463 510 CCCCAGA G CUCACCC 2715 CTTGGGGA GGCTAGCTACAACGA AGGTTTCC 11463 510 CCCCAGA G CUCACCCC 2715 CTTGGGGA GGCTAGCTACAACGA AGGTTTCC 11463 511 CCCCAGA G CUCACCCC 2715 CTTGGGGA GGCTAGCTACAACGA GAGCCTTC 11465 512 CGUCCCAG G CCCGGGGG C 2718 CCCCCAGGG GGCTAGCTACAACGA GAGCCTTC 11465 513 UGCCCCAG C CCCGGGGG C 2718 CCCCCAGGG GGCTAGCTACAACGA CGCCAGCC 11465 514 CCCCCAGGG G CCCAGCCC 2718 CCCCCAGGG GGCTAGCTACAACGA CGGCCAGC 11465 515 GAGGCCGG G CCCAGGCCC 2718 CCCCCAGGGG GGCTAGCTACACACGA CGGCCAGC 11465 516 CCCCCAGGG G CCCAGGCGC 2718 CCCCCAGGGG GCTAGCTACAACGA CGGCCAGC 11465 517 GCCCGAGG G CCCAGGGGG C CCCAGGGGG GCTAGCTACAACGA CGGCCAGC 11465 518 CACCCCCGGG G CCCAGGGGG CCCAGGGGGGGGGGG	463	CAGGUUGG G UGUGCGCG	2701	CGCGCACA GGCTAGCTACAACGA CCAACCTG	11450
469 GGGUGUGC G COGACUA 2705 TARGYCCC GGCTAGCTACAACGA GCACACC 11453 471 GUGUGCC G CAACUAGG 2705 CCTAGTCG GGCTAGCTACAACGA GCGCACAC 11454 474 UGGGGGGG A CUAGGAAG 2706 CTTCCTAG GGCTAGCTACAACGA CGGGGCA 11455 483 CUAGGAAG A CUUCCGAG 2708 TOCGGAAG GGCTAGCTACAACGA CTTCCTAG 11456 491 ACUUCCGA G CGGUGCCA 2708 TOCGGAAG GGCTAGCTACAACGA CTCCTAG 11457 494 UCCGAGGG G UGGCAACC 2709 GGTTGCGA GGCTAGCTACAACGA CGCTCGCA 11458 497 GAGCGGG G UGGCAACC 2710 CCAGGGTG GGCTAGCTACAACGA CGCTCGCA 11458 497 GAGCGGG G CAACCUCG 2710 CCAGGGG GGCTAGCTACAACGA CGCTCGCA 11458 500 CGGUGCCA CCUCGUGG 2711 CCACGAGG GGCTAGCTACAACGA CACCCCCC 11459 500 CGGUGGCA CCUCGUGG 2712 GCCTTCCA GGCTAGCTACAACGA GACCCCTC 11459 500 CGGUGGGA CCUCGUGG 2712 GCCTTCCA GGCTAGCTACAACGA GACCCCTC 11465 515 GGAAGGGC CACCACAC 2713 GGTTGCTG ACACACGA GAGCTCTCCC 11465 515 GGAAGGG CACCACACC 2713 GGTTGCTG ACACACGA CGCCTTCC 11465 515 GGAAGGG ACACCUAU 2714 ATAGGTTG GGCTAGCTACAACGA CGCCTTCC 11465 515 GGAAGGC CACUACCC 2715 GGGTAAG GGCTAGCTACAACGA CGCTTCC 11465 516 AGGCACAC CUCUACCC 2715 GGGTAAG GGCTAGCTACAACGA CGCTTCC 11465 518 AGGCACA CUCUACCC 2715 CCGGCGG GGCTAGCTACAACGA CGCTTCC 11465 518 AGGCACA CUCUACCC 2715 CCGGCGG GGCTAGCTACAACGA CGCTTCC 11465 518 AGGCCTG CCCGAGGG 2716 CTTGGGGA GGCTAGCTACAACGA CGCTTGC 11465 518 AGGCCTG CCCGAGGG 2717 CCGGCGG GGCTAGCTACAACGA CGGCTGG 11467 518 418	465	GGUUGGGU G UGCGCGCG	2702	CGCGCGCA GGCTAGCTACAACGA ACCCAACC	11451
471	467	UUGGGUGU G CGCGCGAC	2703	GTCGCGCG GGCTAGCTACAACGA ACACCCAA	11452
474 UGGGGGGG À CUNGGANG 2706 CTTCCTAG GGCTAGCTACACGA CGGCGGCA 11455 483 CUNGGANG À CUUCCGAG 2708 TGCGAAGG GGCTAGCTACAACGA CTTCCTAG 11455 491 ACUUCCGA G CGGUGGCA 2708 TGCGAACG GGCTAGCTACAACGA CTTCCTAG 11457 494 UCCGAGGG G UGGCAACC 2709 GGTTGCGA GGCTAGCTACAACGA CGGCTGGA 11458 497 GAGCGGUC G LOGCAACC 2710 CGGGGTG GGCTAGCTACAACGA CGCTCGGA 11459 500 CGGUGCCA A CCUCGUGG 2711 CCACGAGG GGCTAGCTACAACGA GACGCGC 11469 505 GCAACCUC G UGGAAGGC 2712 CGCAGGG GGCTAGCTACAACGA GACGCGCC 11469 505 GCAACCUC G UGGAAGGC 2712 GCCTTCCA GGCTAGCTACAACGA GACGCCC 11469 515 GCAACCUC G UGGAAGGC 2713 GCTTCCA GGCTAGCTACAACGA CGCCTCCC 11463 515 GGAAGGCG A CACCUAU 2714 ATAGGTTG GGCTAACTAACGA CTTCCACG 11462 515 GGAAGGCG A CACCUAU 2714 ATAGGTTG GGCTAACTAACGA CGCCTCC 11463 518 AGGGGACA CCUADCCC 2715 GGGATAGCTACAACGA CGCCTCC 11464 522 GACAACCU A UCCCCAAG 2715 CTTGGGGA GGCTAGCTACAACGA CGCCTCC 11463 531 UCCCCAAG G CUCGCCGG 2717 CCGGGCGA GGCTAGCTACAACGA AGGTTGTC 11464 523 GACAACCU A UCCCCAAG 2716 CTTGGGGA GGCTAGCTACAACGA AGGTTGTC 11464 533 UCCCCAAG G CUCGCCGG 2718 CGGGCCGG GGCTAGCTACAACGA CGCCTCG 11463 535 CAAGGGUC G CCCGACGG 2718 CGGGCCGG GGCTAGCTACAACGA CGCCTCG 11467 539 GCUCGCCG G CCCGACGG 2718 CGGGCCGG GGCTAGCTACAACGA CGCCTCG 11467 539 GCUCGCCG G CCCGACGG 2718 CGGCCGG GGCTAGCTACAACGA CGGCCGC 11467 556 UGGGCGG G CAGGGCCU 2720 AGGCCCT GGCTAGCTACAACGA CGGCCGC 11467 557 AGGGCCGG G CCCGAGGGC 2721 AGCCCCGG GGCTAGCTACAACGA CGGCCGC 11475 558 GGGCCUGG G CCCGAGGGC 2721 AGCCCCGG GGCTAGCTACAACGA CCTGGCCC 11475 559 CAGCCCGG G CCCGAGGGC 2721 AGCCCCGG GGCTAGCTACAACGA CCTGGCCC 11475 559 CAGCCCGG G CCCGAGGG 2721 AGCCCCGG GGCTAGCTACAACGA CCTGGCCC 11475 559 CAGCCCGG G CCCGAGGG 2721 AGCCCCGG GGCTAGCTACAACGA CCAGGGCC 11475 559 CAGCCCGG G CCCGAGGG 2721 CACGGGG GGCTAGCTACAACGA CCAGGGCC 11475 559 CAGCCCGG G CCCGCGC 2722 GGCCAGGGGCC AGCGAGCACAACGA CCAGGGCC 11475 559 CAGCCCGG G CCCGCGCG 2722 GGCCAGGGGCGC AGCGAGCACAACGA CCAGGGCC 11475 559 CAGCCCGG G CCCGCGC 2723 GCCCGGGGGCGC ACCGAGCACACGA CCAGGGCC 11475 559 CAGCCCGG G CCCCCCC 2725 GCCAGGGGGCGC ACCGAGCACACGA CCAGGGCC 11475 55	469	GGGUGUGC G CGCGACUA	2704	TAGTCGCG GGCTAGCTACAACGA GCACACCC	11453
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661 CCCCACGG A CCCCCGGC 2743 GCCGGGGG GGCTAGCTACAACGA CCGTGGGG 11492 668 GACCCCCG G CGUAGGUC 2744 GACCTACG GGCTAGCTACAACGA CGGGGGTC 11493 670 CCCCCGGC G UAGGUCGC 2745 GCGACCTA GGCTAGCTACAACGA GCCGGGGG 11494 674 CGGCGUAG G UCGCGUAA 2746 TTACGCGA GGCTAGCTACAACGA CTACGCCG 11495 677 CGUAGGUC G CGUAACUU 2747 AAGTTACG GGCTAGCTACAACGA GACCTACG 11496 679 UAGGUCGC G UAACUUGG 2748 CCAAGTTA GGCTAGCTACAACGA GCGACCTA 11497 682 GUCGCGUA A CUUGGGUA 2749 TACCCAAG GGCTAGCTACAACGA TACGCGAC 11498 688 UAACUUGG G UAAGGUCA 2750 TGACCTTA GGCTAGCTACAACGA CCAAGTTA 11499 693 UGGGUAAG G UCAUCGAU 2751 ATCGATGA GGCTAGCTACAACGA CTTACCCA 11500 696 GUAAGGUC A UCGAUACC 2752 GGTATCGA GGCTAGCTACAACGA GACCTTAC 11501 700 GGUCAUCG A UACCCUCA 2753 TGAGGGTA GGCTAGCTACAACGA CGATGACC 11502			2741	CCGTGGGG GGCTAGCTACAACGA CCCAACTA	11490
GACCCCCG G CGUAGGUC 2744 GACCTACG GGCTAGCTACAACGA CGGGGGTC 11493 670 CCCCCGGC G UAGGUCGC 2745 GCGACCTA GGCTAGCTACAACGA GCCGGGGG 11494 674 CGGCGUAG G UCGCGUAA 2746 TTACGCGA GGCTAGCTACAACGA CTACGCCG 11495 677 CGUAGGUC G CGUAACUU 2747 AAGTTACG GGCTAGCTACAACGA GACCTACG 11496 679 UAGGUCGC G UAACUUGG 2748 CCAAGTTA GGCTAGCTACAACGA GCGACCTA 11497 682 GUCGCGUA A CUUGGGUA 2749 TACCCAAG GGCTAGCTACAACGA TACGCGAC 11498 688 UAACUUGG G UAAGGUCA 2750 TGACCTTA GGCTAGCTACAACGA CCAAGTTA 11499 693 UGGGUAAG G UCAUCGAU 2751 ATCGATGA GGCTAGCTACAACGA CTTACCCA 11500 696 GUAAGGUC A UCGAUACC 2752 GGTATCGA GGCTAGCTACAACGA GACCTTAC 11501 700 GGUCAUCG A UACCCUCA 2753 TGAGGGTA GGCTAGCTACAACGA CGATGACC 11502	657	GGGGCCCC A CGGACCCC	2742	GGGGTCCG GGCTAGCTACAACGA GGGGCCCC	11491
670 CCCCCGGC G UAGGUCGC 2745 GCGACCTA GGCTAGCTACAACGA GCCGGGGG 11494 674 CGGCGUAG G UCGCGUAA 2746 TTACGCGA GGCTAGCTACAACGA CTACGCCG 11495 677 CGUAGGUC G CGUAACUU 2747 AAGTTACG GGCTAGCTACAACGA GACCTACG 11496 679 UAGGUCGC G UAACUUGG 2748 CCAAGTTA GGCTAGCTACAACGA GCGACCTA 11497 682 GUCGCGUA A CUUGGGUA 2749 TACCCAAG GGCTAGCTACAACGA TACGCGAC 11498 688 UAACUUGG G UAAGGUCA 2750 TGACCTTA GGCTAGCTACAACGA CCAAGTTA 11499 693 UGGGUAAG G UCAUCGAU 2751 ATCGATGA GGCTAGCTACAACGA CTTACCCA 11500 696 GUAAGGUC A UCGAUACC 2752 GGTATCGA GGCTAGCTACAACGA GACCTTAC 700 GGUCAUCG A UACCCUCA 2753 TGAGGGTA GGCTAGCTACAACGA CGATGACC 11502 702 UCAUCGAU A CCCUCACA 2754 TGTGAGGG GGCTAGCTACAACGA ATCGATGA 11503	661	CCCCACGG A CCCCCGGC	2743	GCCGGGG GGCTAGCTACAACGA CCGTGGGG	11492
674 CGGCGUAG G UCGCGUAA 2746 TTACGCGA GGCTAGCTACAACGA CTACGCCG 11495 677 CGUAGGUC G CGUAACUU 2747 AAGTTACG GGCTAGCTACAACGA GACCTACG 11496 679 UAGGUCGC G UAACUUGG 2748 CCAAGTTA GGCTAGCTACAACGA GCGACCTA 11497 682 GUCGCGUA A CUUGGGUA 2749 TACCCAAG GGCTAGCTACAACGA TACGCGAC 11498 688 UAACUUGG G UAAGGUCA 2750 TGACCTTA GGCTAGCTACAACGA CCAAGTTA 11499 693 UGGGUAAG G UCAUCGAU 2751 ATCGATGA GGCTAGCTACAACGA CTTACCCA 11500 696 GUAAGGUC A UCGAUACC 2752 GGTATCGA GGCTAGCTACAACGA GACCTTAC 700 GGUCAUCG A UACCCUCA 2753 TGAGGGTA GGCTAGCTACAACGA CGATGACC 11502 702 UCAUCGAU A CCCUCACA 2754 TGTGAGGG GGCTAGCTACAACGA ATCGATGA 11503	668	GACCCCCG G CGUAGGUC	2744	GACCTACG GGCTAGCTACAACGA CGGGGGTC	11493
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677 CGUAGGUC G CGUAACUU 2747 AAGTTACG GGCTAGCTACAACGA GACCTACG 11496 679 UAGGUCGC G UAACUUGG 2748 CCAAGTTA GGCTAGCTACAACGA GCGACCTA 11497 682 GUCGCGUA A CUUGGGUA 2749 TACCCAAG GGCTAGCTACAACGA TACGCGAC 11498 688 UAACUUGG G UAAGGUCA 2750 TGACCTTA GGCTAGCTACAACGA CCAAGTTA 11499 693 UGGGUAAG G UCAUCGAU 2751 ATCGATGA GGCTAGCTACAACGA CTTACCCA 11500 696 GUAAGGUC A UCGAUACC 2752 GGTATCGA GGCTAGCTACAACGA GACCTTAC 11501 700 GGUCAUCG A UACCCUCA 2753 TGAGGGTA GGCTAGCTACAACGA CGATGACC 11502 702 UCAUCGAU A CCCUCACA 2754 TGTGAGGG GGCTAGCTACAACGA ATCGATGA 11503	674	CGGCGUAG G UCGCGUAA	2746	TTACGCGA GGCTAGCTACAACGA CTACGCCG	11495
679 UAGGUCGC G UAACUUGG 2748 CCAAGTTA GGCTAGCTACAACGA GCGACCTA 11497 682 GUCGCGUA A CUUGGGUA 2749 TACCCAAG GGCTAGCTACAACGA TACGCGAC 11498 688 UAACUUGG G UAAGGUCA 2750 TGACCTTA GGCTAGCTACAACGA CCAAGTTA 11499 693 UGGGUAAG G UCAUCGAU 2751 ATCGATGA GGCTAGCTACAACGA CTTACCCA 11500 696 GUAAGGUC A UCGAUACC 2752 GGTATCGA GGCTAGCTACAACGA GACCTTAC 11501 700 GGUCAUCG A UACCCUCA 2753 TGAGGGTA GGCTAGCTACAACGA CGATGACC 11502 702 UCAUCGAU A CCCUCACA 2754 TGTGAGGG GGCTAGCTACAACGA ATCGATGA 11503	677	CGUAGGUC G CGUAACUU	2747		
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696 GUAAGGUC A UCGAUACC 2752 GGTATCGA GGCTAGCTACAACGA GACCTTAC 11501 700 GGUCAUCG A UACCCUCA 2753 TGAGGGTA GGCTAGCTACAACGA CGATGACC 11502 702 UCAUCGAU A CCCUCACA 2754 TGTGAGGG GGCTAGCTACAACGA ATCGATGA 11503		· · · · · · · · · · · · · · · · · · ·			
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- IND 1 - MUNICIALIS M CHUNGANE - 1 2768 C (2002/2000/2008/2008/2088/2008/2008/2008					
2733 GCCGCATG GGCTAGCTACAACGA GAGGGTAT 11504	/08	AUACCCUC A CAUGCGGC	2755	GCCGCATG GGCTAGCTACAACGA GAGGGTAT	11504

710	ACCCUONC A LICCCOCTU	2756	AACCCCCA CCCTACCTACAACCA CTCACCCT	11505
710	ACCCUCAC A UGCGGCUU CCUCACAU G CGGCUUCG	2756 2757	AAGCCGCA GGCTAGCTACAACGA GTGAGGGT CGAAGCCG GGCTAGCTACAACGA ATGTGAGG	11505
715	CACAUGCG G CUUCGCCG	2758	CGAAGCCG GGCTAGCTACAACGA ATGTGAGG CGGCGAAG GGCTAGCTACAACGA CGCATGTG	11506
720	GCGGCUUC G CCGACCUC	2759	GAGGTCGG GGCTAGCTACAACGA CGCATGTG GAGGTCGG GGCTAGCTACAACGA GAAGCCGC	11507
724	CUUCGCCG A CCUCAUGG	2760	CCATGAGG GGCTAGCTACAACGA GAAGCCGC CCATGAGG GGCTAGCTACAACGA CGGCGAAG	11508 11509
729	CCGACCUC A UGGGGUAC	2761	GTACCCCA GGCTAGCTACAACGA CGGCGAAG	
734	CUCAUGGG G UACAUUCC	2762	GGAATGTA GGCTAGCTACAACGA CACGTCGG	11510
734	CAUGGGGU A CAUUCCGC	2762	GCGGAATG GGCTAGCTACAACGA CCCCATGAG	11511
738	UGGGGUAC A UUCCGCUC	2764	GAGCGGAA GGCTAGCTACAACGA GTACCCCA	11512
743	UACAUUCC G CUCGUCGG	2765	CCGACGAG GGCTAGCTACAACGA GGAATGTA	
747	UUCCGCUC G UCGGCGCC	2766	GGCGCCGA GGCTAGCTACAACGA GAGCGGAA	11514
751	GCUCGUCG G CGCCCCU	2767	AGGGGGCG GGCTAGCTACAACGA GAGCGGAA	11515
753	UCGUCGGC G CCCCCUUG	2768	CAAGGGG GGCTAGCTACAACGA CGACGAGC	11516
766	CUUGGAG G CACUGCCA	2769	TGGCAGTG GGCTAGCTACAACGA CTCCCAAG	
768	UGGGAGGC A CUGCCAGG	2770	CCTGGCAG GGCTAGCTACAACGA CCCCCAAG	11518
771	GAGGCACU G CCAGGGCC	2771	GGCCTGG GGCTAGCTACAACGA GCCTCCCA	11519
777	CUGCCAGG G CCCUGGCG	2772		11520
783	GGGCCCUG G CGCAUGGC	2773	CGCCAGGG GGCTAGCTACAACGA CCTGGCAG GCCATGCG GGCTAGCTACAACGA CAGGGCCC	11521
785	GCCUGGC G CAUGGCGU	2774	ACGCCATG GGCTAGCTACAACGA CAGGGCCC	11522
787	CCUGGCGC A UGGCGUCC	2775	GGACGCCA GGCTAGCTACAACGA GCCAGGGC	11523
790	GGCGCAUG G CGUCCGGG	2776	CCCGGACG GGCTAGCTACAACGA GCGCCAGG	11524
792	CGCAUGGC G UCCGGGUU	2777	AACCCGGA GGCTAGCTACAACGA CATGCGC	11525
798	GCGUCCGG G UUCUGGAA	2778	TTCCAGAA GGCTAGCTACAACGA GCCATGCG	11526
808	UCUGGAAG A CGGCGUGA	2779	TCACGCCG GGCTAGCTACAACGA CTTCCAGA	1152.7
811	GGAGACG G CGUGAACU	2780	AGTTCACG GGCTAGCTACAACGA CGTCTTCC	11528
813	AAGACGGC G UGAACUAU	2781	ATAGTTCA GGCTAGCTACAACGA GCCGTCTT	11530
817	CGGCGUGA A CUAUGCAA	2782	TTGCATAG GGCTAGCTACAACGA TCACGCCG	11531
820	CGUGAACU A UGCAACAG	2783	CTGTTGCA GGCTAGCTACAACGA AGTTCACG	11531
822	UGAACUAU G CAACAGGG	2784	CCCTGTTG GGCTAGCTACAACGA ATAGTTCA	11532
825	ACUAUGCA A CAGGGAAU	2785	ATTCCCTG GGCTAGCTACAACGA TGCATAGT	11534
832	AACAGGGA A UCUGCCCG	2786	CGGGCAGA GGCTAGCTACAACGA TCCCTGTT	11535
836	GGGAAUCU G CCCGGUUG	2787	CAACCGGG GGCTAGCTACAACGA AGATTCCC	11536
841	UCUGCCCG G UUGCUCUU	2788	AAGAGCAA GGCTAGCTACAACGA CGGGCAGA	11537
844	GCCGGUU G CUCUUUCU	2789	AGAAAGAG GGCTAGCTACAACGA AACCGGGC	11538
855	CUUUCUCU A UCUUCCUC	2790	GAGGAAGA GGCTAGCTACAACGA AGAGAAAG	11539
867	UCCUCUUG G CUCUGCUG	2791	CAGCAGAG GGCTAGCTACAACGA CAAGAGGA	11540
872	UUGGCUCU G CUGCCCUG	2792	CAGGGCAG GGCTAGCTACAACGA AGAGCCAA	11541
875	GCUCUGCU G CCCUGUCU	2793	AGACAGGG GGCTAGCTACAACGA AGCAGAGC	11542
880	GCUGCCCU G UCUGACCA	2794	TGGTCAGA GGCTAGCTACAACGA AGGGCAGC	11543
885	CCUGUCUG A CCAUCCCA	2795	TGGGATGG GGCTAGCTACAACGA CAGACAGG	11544
888	GUCUGACC A UCCCAGCC	2796	GGCTGGGA GGCTAGCTACAACGA GGTCAGAC	11545
894	CCAUCCCA G CCUCCGCU	2797	AGCGGAGG GGCTAGCTACAACGA TGGGATGG	11546
900	CAGCCUCC G CUUAUGAG	2798	CTCATAAG GGCTAGCTACAACGA GGAGGCTG	11547
904	CUCCGCUU A UGAGGUGU	2799	ACACCTCA GGCTAGCTACAACGA AAGCGGAG	11548
909	CUUAUGAG G UGUGCAAC	2800	GTTGCACA GGCTAGCTACAACGA CTCATAAG	11549
911	UAUGAGGU G UGCAACGC	2801	GCGTTGCA GGCTAGCTACAACGA ACCTCATA	11550
913	UGAGGUGU G CAACGCGU	2802	ACGCGTTG GGCTAGCTACAACGA ACACCTCA	11551
916	GGUGUGCA A CGCGUCCG	2803	CGGACGCG GGCTAGCTACAACGA TGCACACC	11552
918	UGUGCAAC G CGUCCGGG	2804	CCCGGACG GGCTAGCTACAACGA GTTGCACA	11553
920	UGCAACGC G UCCGGGCU	2805	AGCCCGGA GGCTAGCTACAACGA GCGTTGCA	11554
926	GCGUCCGG G CUGUACCA	2806	TGGTACAG GGCTAGCTACAACGA CCGGACGC	11555
929	UCCGGGCU G UACCAUGU	2807	ACATGGTA GGCTAGCTACAACGA AGCCCGGA	11556
931	CGGGCUGU A CCAUGUCA	2808	TGACATGG GGCTAGCTACAACGA ACAGCCCG	11557
934	GCUGUACC A UGUCACGA	2809	TCGTGACA GGCTAGCTACAACGA GGTACAGC	11558
936	UGUACCAU G UCACGAAC	2810	GTTCGTGA GGCTAGCTACAACGA ATGGTACA	11559
939	ACCAUGUC A CGAACGAU	2811	ATCGTTCG GGCTAGCTACAACGA GACATGGT	11560
			L	

943	UGUCACGA A CGAUUGCU	2812	AGCAATCG GGCTAGCTACAACGA TCGTGACA	11561
946	CACGAACG A UUGCUCCA	2813	TGGAGCAA GGCTAGCTACAACGA CGTTCGTG	11562
949	GAACGAUU G CUCCAACU	2814	AGTTGGAG GGCTAGCTACAACGA AATCGTTC	11563
955	UUGCUCCA A CUCAAGCA	2815	TGCTTGAG GGCTAGCTACAACGA TGGAGCAA	11564
961	CAACUCAA G CAUUGUGU	2816	ACACAATG GGCTAGCTACAACGA TTGAGTTG	11565
963	ACUCAAGC A UUGUGUAU	2817	ATACACAA GGCTAGCTACAACGA GCTTGAGT	11566
966	CAAGCAUU G UGUAUGAG	2818	CTCATACA GGCTAGCTACAACGA AATGCTTG	11567
968	AGCAUUGU G UAUGAGGC	2819	GCCTCATA GGCTAGCTACAACGA ACAATGCT	11568
970	CAUUGUGU A UGAGGCAG	2820	CTGCCTCA GGCTAGCTACAACGA ACACAATG	11569
975	UGUAUGAG G CAGAGGAC	2821	GTCCTCTG GGCTAGCTACAACGA CTCATACA	11570
982	GGCAGAGG A CAUGAUCA	2822	TGATCATG GGCTAGCTACAACGA CCTCTGCC	11571
984	CAGAGGAC A UGAUCAUG	2823	CATGATCA GGCTAGCTACAACGA GTCCTCTG	11572
987	AGGACAUG A UCAUGCAC	2824	GTGCATGA GGCTAGCTACAACGA CATGTCCT	11573
990	ACAUGAUC A UGCACACC	2825	GGTGTGCA GGCTAGCTACAACGA GATCATGT	11574
992	AUGAUCAU G CACACCCC	2826	GGGGTGTG GGCTAGCTACAACGA ATGATCAT	11575
994	GAUCAUGC A CACCCCGG	2827	CCGGGGTG GGCTAGCTACAACGA GCATGATC	11576
996	UCAUGCAC A CCCCGGGG	2828	CCCCGGGG GGCTAGCTACAACGA GTGCATGA	11577
1004	ACCCCGGG G UGCGUGCC	2829	GGCACGCA GGCTAGCTACAACGA CCCGGGGT	11578
1006	CCCGGGGU G CGUGCCCU	2830	AGGGCACG GGCTAGCTACAACGA ACCCCGGG	11579
1008	CGGGGUGC G UGCCCUGC	2831	GCAGGGCA GGCTAGCTACAACGA GCACCCCG	11580
1010	GGGUGCGU G CCCUGCGU	2832	ACGCAGGG GGCTAGCTACAACGA ACGCACCC	11581
1015	CGUGCCCU G CGUUCGGG	2833	CCCGAACG GGCTAGCTACAACGA AGGGCACG	11582
1017	UGCCCUGC G UUCGGGAG	2834	CTCCCGAA GGCTAGCTACAACGA GCAGGGCA	11583
1027	UCGGGAGA A CAACUCCU	2835	AGGAGTTG GGCTAGCTACAACGA TCTCCCGA	11584
1030	GGAGAACA A CUCCUCCC	2836	GGGAGGAG GGCTAGCTACAACGA TGTTCTCC	11585
1039	CUCCUCCC G CUGCUGGG	2837	CCCAGCAG GGCTAGCTACAACGA GGGAGGAG	11586
1042	CUCCCGCU G CUGGGUAG	2838	CTACCCAG GGCTAGCTACAACGA AGCGGGAG	11587
1047	GCUGCUGG G UAGCGCUC	2839	GAGCGCTA GGCTAGCTACAACGA CCAGCAGC	11588
1050	GCUGGGUA G CGCUCACU	2840	AGTGAGCG GGCTAGCTACAACGA TACCCAGC	
1052	UGGGUAGC G CUCACUCC	2841	GGAGTGAG GGCTAGCTACAACGA TACCCAGC	11589
1056	UAGCGCUC A CUCCCACG	2842		11590
1062	UCACUCCC A CGCUCGCG	2843	CGTGGGAG GGCTAGCTACAACGA GAGCGCTA	11591
1064	ACUCCCAC G CUCGCGGC		CGCGAGCG GGCTAGCTACAACGA GGGAGTGA	11592
1068	CCACGCUC G CGGCCAGG	2844	GCCGCGAG GGCTAGCTACAACGA GTGGGAGT	11593
1071	CGCUCGCG G CCAGGAAU	2845	CCTGGCCG GGCTAGCTACAACGA GAGCGTGG	11594
1078	·	2846	ATTCCTGG GGCTAGCTACAACGA CGCGAGCG	11595
	GGCCAGGA A UGCCAGCA	2847	TGCTGGCA GGCTAGCTACAACGA TCCTGGCC	11596
1080	CCAGGAAU G CCAGCAUC	2848	GATGCTGG GGCTAGCTACAACGA ATTCCTGG	11597
1084	GAAUGCCA G CAUCCCCA	2849	TGGGGATG GGCTAGCTACAACGA TGGCATTC	11598
1086	AUGCCAGC A UCCCCACU	2850	AGTGGGGA GCTAGCTACAACGA GCTGGCAT	11599
1092	GCAUCCCC A CUACGACG	2851	CGTCGTAG GGCTAGCTACAACGA GGGGATGC	11600
1095	UCCCCACU A CGACGAUA	2852	TATCGTCG GGCTAGCTACAACGA AGTGGGGA	11601
1098	CCACUACG A CGAUACGG	2853	CCGTATCG GGCTAGCTACAACGA CGTAGTGG	11602
1101	CUACGACG A UACGGCGU	2854	ACGCCGTA GGCTAGCTACAACGA CGTCGTAG	11603
1103	ACGACGAU A CGGCGUCA	2855	TGACGCCG GGCTAGCTACAACGA ATCGTCGT	11604
1106	ACGAUACG G CGUCACGU	2856	ACGTGACG GGCTAGCTACAACGA CGTATCGT	11605
1108	GAUACGGC G UCACGUCG	2857	CGACGTGA GGCTAGCTACAACGA GCCGTATC	11606
1111	ACGCGUC A CGUCGAUU	2858	AATCGACG GGCTAGCTACAACGA GACGCCGT	11607
1113	GGCGUCAC G UCGAUUUG	2859	CAAATCGA GGCTAGCTACAACGA GTGACGCC	11608
1117	UCACGUCG A UUUGCUCG	2860	CGAGCAAA GGCTAGCTACAACGA CGACGTGA	11609
1121	GUCGAUUU G CUCGUUGG	2861	CCAACGAG GGCTAGCTACAACGA AAATCGAC	11610
1125	AUUUGCUC G UUGGGGCG	2862	CGCCCCAA GGCTAGCTACAACGA GAGCAAAT	11611
1131	UCGUUGGG G CGGCUGCU	2863	AGCAGCCG GGCTAGCTACAACGA CCCAACGA	11612
1134	UUGGGGCG G CUGCUUUC	2864	GAAAGCAG GGCTAGCTACAACGA CGCCCCAA	11613
1137	GGGCGGCU G CUUUCUGC	2865	GCAGAAAG GGCTAGCTACAACGA AGCCGCCC	11614
1144	UGCUUUCU G CUCUGCUA	2866	TAGCAGAG GGCTAGCTACAACGA AGAAAGCA	11615
1149	UCUGCUCU G CUAUGUAC	2867	GTACATAG GGCTAGCTACAACGA AGAGCAGA	11616
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1150	CONTROLL A MONTA CONTRA	1 2000	CARGONA CA COCONA CONTRACTA ACCARGAGACA	11610
1152	GCUCUGCU A UGUACGUG	2868	CACGTACA GGCTAGCTACAACGA AGCAGAGC CCCACGTA GGCTAGCTACAACGA ATAGCAGA	11617
	UCUGCUAU G UACGUGGG	2869		11618
1156	UGCUAUGU A CGUGGGGG	2870	CCCCCACG GGCTAGCTACAACGA ACATAGCA ATCCCCCA GGCTAGCTACAACGA GTACATAG	11619
1158	CUAUGUAC G UGGGGGAU	2871		11620
1165	CGUGGGGG A UCUCUGCG	2872	CGCAGAGA GGCTAGCTACAACGA CCCCCACG	11621
1171	GGAUCUCU G CGGAUCUG	2873	CAGATCCG GGCTAGCTACAACGA AGAGATCC	11622
1175	CUCUGCGG A UCUGUCUU	2874	AAGACAGA GGCTAGCTACAACGA CCGCAGAG	11623
1179	GCGGAUCU G UCUUCCUC	2875	GAGGAAGA GGCTAGCTACAACGA AGATCCGC	11624
1188	UCUUCCUC G UCUCUCAG	2876	CTGAGAGA GGCTAGCTACAACGA GAGGAAGA	11625
1196	GUCUCUCA G CUGUUCAC	2877	GTGAACAG GGCTAGCTACAACGA TGAGAGAC	11626
1199	UCUCAGCU G UUCACCUU	2878	AAGGTGAA GGCTAGCTACAACGA AGCTGAGA	11627
1203	AGCUGUUC A CCUUCUCG	2879	CGAGAAGG GGCTAGCTACAACGA GAACAGCT	11628
1211	ACCUUCUC G CCUCGCCG	2880	CGGCGAGG GGCTAGCTACAACGA GAGAAGGT	11629
1216	CUCGCCUC G CCGGUAUG	2881	CATACCGG GGCTAGCTACAACGA GAGGCGAG	11630
1220	CCUCGCCG G UAUGAGAC	2882	GTCTCATA GGCTAGCTACAACGA CGGCGAGG	11631
1222	UCGCCGGU A UGAGACAG	2883	CTGTCTCA GGCTAGCTACAACGA ACCGGCGA	11632
1227	GGUAUGAG A CAGUACAG	2884	CTGTACTG GGCTAGCTACAACGA CTCATACC	11633
1230	AUGAGACA G UACAGGAC	2885	GTCCTGTA GGCTAGCTACAACGA TGTCTCAT	11634
1232	GAGACAGU A CAGGACUG	2886	CAGTCCTG GGCTAGCTACAACGA ACTGTCTC	11635
1237	AGUACAGG A CUGUAAUU	2887	AATTACAG GGCTAGCTACAACGA CCTGTACT	11636
1240	ACAGGACU G UAAUUGCU	2888	AGCAATTA GGCTAGCTACAACGA AGTCCTGT	11637
1243	GGACUGUA A UUGCUCGA	2889	TCGAGCAA GGCTAGCTACAACGA TACAGTCC	11638
1246	CUGUAAUU G CUCGAUCU	2890	AGATCGAG GGCTAGCTACAACGA AATTACAG	11639
1251	AUUGCUCG A UCUAUCCC	2891	GGGATAGA GGCTAGCTACAACGA CGAGCAAT	11640
1255	CUCGAUCU A UCCCGGCC	2892	GGCCGGGA GGCTAGCTACAACGA AGATCGAG	11641
1261	CUAUCCCG G CCACGUAU	2893	ATACGTGG GGCTAGCTACAACGA CGGGATAG	11642
1264	UCCCGGCC A CGUAUCAG	2894	CTGATACG GGCTAGCTACAACGA GGCCGGGA	11643
1266	CCGGCCAC G UAUCAGGC	2895	GCCTGATA GGCTAGCTACAACGA GTGGCCGG	11644
1268	GGCCACGU A UCAGGCCA	2896	TGGCCTGA GGCTAGCTACAACGA ACGTGGCC	11645
1273	CGUAUCAG G CCAUCGCA	2897	TGCGATGG GGCTAGCTACAACGA CTGATACG	11646
1276	AUCAGGCC A UCGCAUGG	2898	CCATGCGA GGCTAGCTACAACGA GGCCTGAT	11647
1279	AGGCCAUC G CAUGGCUU	2899	AAGCCATG GGCTAGCTACAACGA GATGGCCT	11648
1281	GCCAUCGC A UGGCUUGG	2900	CCAAGCCA GGCTAGCTACAACGA GCGATGGC	11649
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1293	CUUGGGAU A UGAUGAUG	2903	CATCATCA GGCTAGCTACAACGA ATCCCAAG	11652
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1303	GAUGAUGA A UUGGUCAC	2906	GTGACCAA GGCTAGCTACAACGA TCATCATC	11655
1307	AUGAAUUG G UCACCUAC	2907	GTAGGTGA GGCTAGCTACAACGA CAATTCAT	11656
1310	AAUUGGUC A CCUACAAC	2908	GTTGTAGG GGCTAGCTACAACGA GACCAATT	11657
1314	GGUCACCU A CAACAGCC	2909	GGCTGTTG GGCTAGCTACAACGA AGGTGACC	11658
1317	CACCUACA A CAGCCCUA	2910	TAGGGCTG GGCTAGCTACAACGA TGTAGGTG	11659
1320	CUACAACA G CCCUAGUG	2911	CACTAGGG GGCTAGCTACAACGA TGTTGTAG	11660
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1329	CCCUAGUG G UAUCGCAG	2913	CTGCGATA GGCTAGCTACAACGA CACTAGGG	11662
1331	CUAGUGGU A UCGCAGUU	2914	AACTGCGA GGCTAGCTACAACGA ACCACTAG	11663
1334	GUGGUAUC G CAGUUGCU	2915	AGCAACTG GGCTAGCTACAACGA GATACCAC	11664
1337	GUAUCGCA G UUGCUCCG	2916	CGGAGCAA GGCTAGCTACAACGA TGCGATAC	11665
1340	UCGCAGUU G CUCCGGAU	2917	ATCCGGAG GGCTAGCTACAACGA AACTGCGA	11666
1347	UGCUCCGG A UCCCACAA	2918	TTGTGGGA GGCTAGCTACAACGA CCGGAGCA	11667
1352	CGGAUCCC A CAAGCCGU	2919	ACGGCTTG GGCTAGCTACAACGA GGGATCCG	11668
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1359	CACAAGCC G UCGUGGAC	2921	GTCCACGA GGCTAGCTACAACGA GGCTTGTG	11670
1362	AAGCCGUC G UGGACAUG	2922	CATGTCCA GGCTAGCTACAACGA GACGGCTT	11671
1366	CGUCGUGG A CAUGGUGG	2923	CCACCATG GGCTAGCTACAACGA CCACGACG	11672

	1100110010	T 2224	GGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGG	
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1371	UGGACAUG G UGGCGGGG	2925	CCCCGCCA GGCTAGCTACAACGA CATGTCCA	11674
1374	ACAUGGUG G CGGGGGCC	2926	GGCCCCG GGCTAGCTACAACGA CACCATGT	11675
1380	UGGCGGGG G CCCACUGG	2927	CCAGTGGG GGCTAGCTACAACGA CCCCGCCA	11676
1384	GGGGCCC A CUGGGGAG	2928	CTCCCCAG GGCTAGCTACAACGA GGGCCCCC	11677
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1398	GAGUCCUG G CGGGCCUU	2930	AAGGCCCG GGCTAGCTACAACGA CAGGACTC	11679
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1429	GGUGGGGA A CUGGGCUA	2937	TAGCCCAG GGCTAGCTACAACGA TCCCCACC	11686
1434	GGAACUGG G CUAAGGUG	2938	CACCTTAG GGCTAGCTACAACGA CCAGTTCC	11687
1440	GGGCUAAG G UGUUGAUU	2939	AATCAACA GGCTAGCTACAACGA CTTAGCCC	11688
1442	GCUAAGGU G UUGAUUGU	2940	ACAATCAA GGCTAGCTACAACGA ACCTTAGC	11689
1446	AGGUGUUG A UUGUGAUG	2941	CATCACAA GGCTAGCTACAACGA CAACACCT	11690
1449	UGUUGAUU G UGAUGCUA	2942	TAGCATCA GGCTAGCTACAACGA AATCAACA	11691
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1454	AUUGUGAU G CUACUCUU	2944	AAGAGTAG GGCTAGCTACAACGA ATCACAAT	11693
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1464	UACUCUUU G CCGGCGUU	2946	AACGCCGG GGCTAGCTACAACGA AAAGAGTA	11695
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1470	UUGCCGGC G UUGACGGG	2948	CCCGTCAA GGCTAGCTACAACGA GCCGGCAA	11697
1474	CGGCGUUG A CGGGGACA	2949	TGTCCCCG GGCTAGCTACAACGA CAACGCCG	11698
1480	UGACGGGG A CACCUACA	2950	TGTAGGTG GGCTAGCTACAACGA CCCCGTCA	11699
1482	ACGGGGAC A CCUACACG	2951	CGTGTAGG GGCTAGCTACAACGA GTCCCCGT	11700
1486	GGACACCU A CACGACAG	2952	CTGTCGTG GGCTAGCTACAACGA AGGTGTCC	11701
1488	ACACCUAC A CGACAGGG	2953	CCCTGTCG GGCTAGCTACAACGA GTAGGTGT	11702
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1500	CAGGGGG G CGCAGGGC	2955	GCCCTGCG GGCTAGCTACAACGA CCCCCCTG	11704
1502	GGGGGGC G CAGGGCCA	2956	TGGCCCTG GGCTAGCTACAACGA GCCCCCCC	11705
1507	GGCGCAGG G CCACACCA	2957	TGGTGTGG GGCTAGCTACAACGA CCTGCGCC	11706
1510	GCAGGGCC A CACCACUA	2958	TAGTGGTG GGCTAGCTACAACGA GGCCCTGC	11707
1512	AGGGCCAC A CCACUAGU	2959	ACTAGTGG GGCTAGCTACAACGA GTGGCCCT	11708
1515	GCCACACC A CUAGUAGG	2960	CCTACTAG GGCTAGCTACAACGA GGTGTGGC	11709
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1524	CUAGUAGG G UGGCAUCC	2962	GGATGCCA GGCTAGCTACAACGA CCTACTAG	11711
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1539	CCCUCUUU A CAUCUGGA	2965	TCCAGATG GGCTAGCTACAACGA AAAGAGGG	11714
1541	CUCUUUAC A UCUGGAGC	2966	GCTCCAGA GGCTAGCTACAACGA GTAAAGAG	11715
1548	CAUCUGGA G CAUCUCAG	2967	CTGAGATG GGCTAGCTACAACGA TCCAGATG	11716
1550	UCUGGAGC A UCUCAGAA	2968	TTCTGAGA GGCTAGCTACAACGA GCTCCAGA	11717
1558	AUCUCAGA A UAUCCAGC	2969	GCTGGATA GGCTAGCTACAACGA TCTGAGAT	11718
1560	CUCAGAAU A UCCAGCUU	2970	AAGCTGGA GGCTAGCTACAACGA ATTCTGAG	11719
1565	AAUAUCCA G CUUAUUAA	2971	TTAATAAG GGCTAGCTACAACGA TGGATATT	11720
1569	UCCAGCUU A UUAACACC	2972	GGTGTTAA GGCTAGCTACAACGA AAGCTGGA	11721
1573	GCUUAUUA A CACCAACG	2973	CGTTGGTG GGCTAGCTACAACGA TAATAAGC	11721
1575	UUAUUAAC A CCAACGC	2974	GCCGTTGG GGCTAGCTACAACGA TAATAAGC	
1579	UAACACCA A CGGCAGCU	2975	AGCTGCCG GGCTAGCTACAACGA TGGTGTTA	11723
1582	CACCAACG G CAGCUGGC	2975		11724
1585	CAACGGCA G CUGGCACA		GCCAGCTG GGCTAGCTACAACGA CGTTGGTG	11725
1589		2977	TGTGCCAG GGCTAGCTACAACGA TGCCGTTG	11726
1303	GGCAGCUG G CACAUUAA	2978	TTAATGTG GGCTAGCTACAACGA CAGCTGCC TGTTAATG GGCTAGCTACAACGA GCCAGCTG	11727
1591	CAGCUGGC A CAUUAACA	2979		11728

1593 GCUGGCA A UUNACAGG 2991 CATTCTO GGCTAGCTACAAGGA TRATGTCC 11729 1597 GCACNUMA A COGCOUG 2991 CAGGGCA GGCTAGCTACAAGGA TANTGTCC 11731 1505 ACRGGACU G CCCUGGAAC 2993 GTAGCTACAAGGA TANTGTCC 11731 1512 UGCCCUGA A CUGCANUG 2998 CATTGCAG GGCTAGCTACAAGGA AGTTCAGG 1515 CCUGAACU G CAAUGACU 2995 AGTCATTG GGCTAGCTACAAGGA AGTTCAGG 11731 1516 CCUGAACU G CAAUGACU 2995 AGTCATTG GGCTAGCTACAAGGA AGTTCAGG 11731 1517 CUGCANUG A CUCCCUCC 2997 GAAGGGAG GGCTAGCTACAAGGA AGTTCAGG 11731 1521 CUGCANUG A CUCCCUCC 2997 GAAGGGAG GGCTAGCTACAAGGA AGTTCAGG 11736 1521 CUGCANUG A CUCCCUCC 2998 GAACGGG GGCTAGCTACAAGGA AGTTCAGG 11736 1521 CUGCANUG A CUCCCUCC 2998 GAACGGG GGCTAGCTACAAGGA CTATGCAGG 11736 1521 CUGCANUG A CUCCUCC 2998 GAACGGG GGCTAGCTACAAGGA CTATGCAG 11736 1521 COGGGGUC A UUCANUG 2999 GCAATGAA GGCTAGCTACAAGGA CCGGTTTG 11738 1521 COGGGGUC A UUCANUG 2999 CAATGGAG GGCTAGCTACAAGGA AGTTGAGG 11740 1521 CUGUAUU G CUGCUCC 2991 CAGTGCAG GGCTAGCTACAAGGA AGCAGA 11741 1524 GGUUCANUG G CAUGUUC 2992 CAGTGCAG GGCTAGCTACAAGGA AGCAGA 11741 1525 GCUGCACU G UUCUNUG 2993 TAGAACGG GGCTAGCTACAAGGA AGCACAT 11741 1526 GUUCUUU G CUCCUCC 2995 TAGACGG GGCTAGCTACAAGGA AGCACAT 11741 1527 CAUGUUC A UUCUNUG 2995 TAGACGG GGCTAGCTACAAGGA AGCACAT 11741 1528 GCUUCUU G GCACCAC 2995 TAGACGG GGCTAGCTACAAGGA AGCACAT 11745 1529 UUCUNUG G CACCAGA 2995 TAGACGG GGCTAGCTACAAGGA AGCACAT 11745 1529 UUCUNUG G CACCAGA 2995 TAGACGG GGCTAGCTACAAGGA AGCACAT 11746 1529 UUCUNUG G CACCAGA 2995 TAGACGG GGCTAGCTACAAGGA AGCACAT 11746 1520 CUUNUGUC A CACCAGGUU 2995 TAGACGG GGCTAGCTACAAGGA AGCACAT 11747 1520 UUCUNUG G CACCAGGUU 2995 TAGACGG GGCTAGCTACAAGGA AGCACAT 11747 1521 CUUCUNUG G CACCAGGUU 2995 TAGACGG GGCTAGCTACAAGGA AGCACAT 11747 1521 CUUCUNUG G CACCAGGA 2995 TAGACGG GGCTAGCTACAAGGA AGCAGGAT 11748 1522 UUCAACUC G UUCAGGG GO					
1605	1593	GCUGGCAC A UUAACAGG	2980	CCTGTTAA GGCTAGCTACAACGA GTGCCAGC	11729
1612	1597	GCACAUUA A CAGGACUG	2981	CAGTCCTG GGCTAGCTACAACGA TAATGTGC	11730
1615	1602	UUAACAGG A CUGCCCUG	2982	CAGGGCAG GGCTAGCTACAACGA CCTGTTAA	11731
1618 CCUGANCU G CANUGACU 2985 AGTCATTG GGCTAGCTACAACGA AGTCAGG 11734 1618 GRACUGCA A UGACUCCC 2987 GGAGGGA GGCTAGCTACAACGA CATTGCAG 11735 1621 CUGCAAUG A CUGCUCCC 2987 GGAGGGA GGCTAGCTACAACGA CATTGCAG 11736 1632 CCCUCCAA A CCGGGUUC 2988 GAACCCGG GGCTAGCTACAACGA CATTGCAG 11736 1637 CANACCGG GUUCAUUCC 2989 GAACAGA GGCTAGCTACAACGA CATTGCAG 11738 1641 CCGGGUUC A UUGCUUCC 2989 GAACAGA GGCTAGCTACAACGA CATTGCAG 11738 1641 CCGGGUUC A UUGCUUCC 2999 TGCAGCAA GGCTAGCTACAACGA GAACCCG 11739 1644 GGUUCAU G CUGCACUG 2991 CAGTGCA GGCTAGCTACAACGA GAACCAG 11741 1649 NUUGCUGC C A CUGUUCU 2992 CAGTGCA GGCTAGCTACAACGA AGCAATGA 11741 1649 NUUGCUGC A CUGUUCUA 2993 TAGAACAG GGCTAGCTACAACGA AGCAATGA 11741 1652 GCUCCAU G UUCUAUC 2994 CAGTGCAG GGCTAGCTACAACGA AGCAATGA 11742 1655 GUGUCAU G UUCUAUC 2995 TOTOTCCA GGCTAGCTACAACGA AGGAATGA 11743 1657 ACUGUUCUA G CAACAGG 2995 CCTGTGTG GGCTAGCTACAACGA AGGAACAT 11744 1659 UGUUCUAU G CAACAGG 2995 CCTGTGTG GGCTAGCTACAACGA AGAACAT 11744 1659 UGUUCUAU G CAACAGG 2995 CCTGTGTG GGCTAGCTACAACGA AGAACAT 11746 1661 UUCUAUGC C A CAAGGUUC 2999 TGATGCA GGCTAGCTACAACGA AGAACAT 11746 1663 CUUCUAUC C CACAGGUU 2997 AACCCTG GGCTAGCTACAACGA CGATGAAC 11746 1663 CUUCUAUC C CACAGGGUU 2998 TGAACCTG GGCTAGCTACAACGA CGATGAAC 11746 1664 GCCACAG G UUCAACU 2999 TGATGCA GGCTAGCTACAACGA CTGTGTGC 11748 1672 CAGGUUCA A CUCGGAUG 3000 GGGACGA GGCTAGCTACAACGA CTGTGTGC 11748 1672 CAGGUUCA A CUCGGAUG 3001 CATCCGA GGCTAGCTACAACGA CTGTGTGC 11749 11749 11740 117	1605	ACAGGACU G CCCUGAAC	2983	GTTCAGGG GGCTAGCTACAACGA AGTCCTGT	11732
1632	1612	UGCCCUGA A CUGCAAUG	2984	CATTGCAG GGCTAGCTACAACGA TCAGGGCA	11733
1621	1615	CCUGAACU G CAAUGACU	2985	AGTCATTG GGCTAGCTACAACGA AGTTCAGG	11734
1637	1618	GAACUGCA A UGACUCCC	2986	GGGAGTCA GGCTAGCTACAACGA TGCAGTTC	11735
1631	1621	CUGCAAUG A CUCCCUCC	2987	GGAGGGAG GGCTAGCTACAACGA CATTGCAG	11736
1641 CCGGGUUC A UUGCUCCA 2990 TCCAGCCA GCCTACCACCA AATCCACG 11739 1644 GGUUCAUU G CUGCACUG 2991 CAGTGCAG GGCTACCTACAACGA AATCAACC 11740 1647 UCAUUGCU G CACUGUUC 2992 GAACACTG GGCTACCTACAACGA AGCAATQ 11741 1649 AUUGCUGC A CUGUUCUA 2993 TAGAACAG GGCTACCTACAACGA AGCAACAT 11742 1652 GCUGCACU G UUCUAUC 2994 TAGAACAG GGCTACCTACAACGA AGCAACAT 11743 1657 ACUGUUCU A UGCACACA 2995 TGTGTGCA GGCTACCTACAACGA AGCAACAT 11743 1657 ACUGUUCU A UGCACACA 2995 TGTGTGCA GGCTACCTACAACGA AGAACAGT 11743 1659 UGUUCUAUC G CACACAGG 2996 CCTGTGTG GGCTACCTACAACGA AGAACAGT 11746 1661 UUCUAUGC A CACAGGUU 2997 AACCTGTG GGCTACCTACAACGA CGATAGAA 11746 1661 UUCUAUGC G CACACAGG 2996 CCTGTGTG GGCTACCTACAACGA CGATAGAA 11746 1667 GCACACAG G UUCAACUC 2999 GAACTGA GGCTAGCTACAACGA CGTGCATAGA 11747 1667 GCACACAG G UUCAACUC 2999 GAACTGA GGCTAGCTACAACGA CTGTGTGC 11749 1672 CAGGUUCA A CUCGUCCG 3 3000 CGGACGA GGCTAGCTACAACGA CTGTGTGC 11749 1672 CAGGUUCA A CUCGUCCG 3 3000 CGGACGA GGCTAGCTACAACGA CGGACGA 11751 1682 UCCGACAG UCCGAGAU 3002 TCTGGGCA GGCTAGCTACAACGA CGGACGA 11751 1684 GUCCGCAC A UGCCCACA 3002 TCTGGGCA GGCTAGCTACAACGA CGGACGA 11751 1688 GGAUGCCC A CAGCGCUU 3004 AACGCTG GGCTACATACAACGA CCGGACGA 11751 1691 UGCCCACA GCGUUGGC 3005 GCCAACGG GGCTAGCTACAACGA CGGACGAC 11754 1691 UGCCCACA GCGUUGGC 3005 GCCAACGG GGCTAGCTACAACGA CGGACGAC 11754 1691 UGCCCACA GCGUUGCC 3006 TGGCCAAG GGCTAGCTACAACGA CGAGCGC 11754 1691 UGCCCACA GCGUUGGC 3006 TGGCCAAG GGCTACACACGA CGAGCGCC 11757 1705 GCCACCUC GCUUGCCC 3007 GCAACGG GGCTACCTACAACGA CGAGCGCC 11757 1705 GCCACCUC GCUUCCA 3008 AGCGGCAG GGCTACCTACAACGA CAACGCC 11757 1705 GCCACCUC GUCCAUC 3007 GCAACGG GGCTACCTACAACGA CAACGGC 11757 1705 GCCACCUC GUCCAUC 3007 GCAACGG GGCTACCTACAACGA CAACGGC 11757 1705 GCCACCUC GUCCAUC 3007 GCAACGG GGCTACCTACAACGA CAACGGC 1	1632	CCCUCCAA A CCGGGUUC	2988	GAACCCGG GGCTAGCTACAACGA TTGGAGGG	11737
1644 GGUUCAUU G CUGCACUS 2991 CAGTGCAG GGCTAGCTACAACGA AATGAACC 11740	1637	CAAACCGG G UUCAUUGC	2989	GCAATGAA GGCTAGCTACAACGA CCGGTTTG	11738
1647	1641	CCGGGUUC A UUGCUGCA	2990	TGCAGCAA GGCTAGCTACAACGA GAACCCGG	11739
1649	1644	GGUUCAUU G CUGCACUG	2991	CAGTGCAG GGCTAGCTACAACGA AATGAACC	11740
1652 GCUGCACU G UUCUAUGC 2994 GCATAGAA GGCTAGCTACAACGA AGTGCAGC 11743 1657 ACUGUUCU A UGCACACA 2995 TOTTGTGCA GGCTAGCTACAACGA AGAACACT 11744 1659 UGUUCUAU G CACACAGG 2996 CCTGTGTG GGCTAGCTACAACGA AGAACACT 11745 1661 UUCUAUGC A CACAGGUU 2997 AACCTGTG GGCTAGCTACAACGA GTAGAAA 11746 1663 CUAUGCAC A CAGGUUCA 2998 TGAACCTG GGCTAGCTACAACGA GTGCATAGA 11747 11746 1663 CUAUGCAC A CAGGUUCA 2999 TGAACCTG GGCTAGCTACAACGA GTGCATAGA 11746 11747 11746 11747 11746 11747 11748 1667 GCACACAG G UUCAACUC 2999 GAGTTGAA GGCTAGCTACAACGA GTGCATAC 11748 1676 UUCAACUC G UCCGGAUG 3000 CGGACGAG GGCTAGCTACAACGA GAGTTGAA 11750 1668 UUCAACUC G UCCGGAUG 3001 ACTCCGGA GGCTAGCTACAACGA GAGTTGAA 11751 1688 GUCCGGAC 1002 10	1647	UCAUUGCU G CACUGUUC	2992	GAACAGTG GGCTAGCTACAACGA AGCAATGA	11741
1657 ACUGUUCU A UGCACACA 2995 TGTGTGCA GGCTAGCTACAACGA AGAACAGT 11744 1659 UGUUCUAUG C ACACAGG 2996 CCTTGTGTG GGCTAGCTACAACGA ATAGAACA 11745 1661 UUCUAUGA C ACACAGGU 2997 AACCTGTG GGCTAGCTACAACGA GCTAGATA 11746 1663 CUAUGCAC A CAGGUUCA 2998 TGAACCTG GGCTAGCTACAACGA GCTAGATA 11746 1667 GCACACAG G UUCAACUC 2999 GAGTTGAA GGCTAGCTACAACGA GTGCATAG 11749 1667 GCACACAG G UUCAACUC 2999 GAGTTGAA GGCTAGCTACAACGA GTGTGTGT 11749 1667 UUCAACUC G UCCGGAUG 3000 CGGACGGA GGCTAGCTACAACGA GTGAACCTG 11749 1668 GUCCGGAU G CCCACAC 3002 TGTGGGCA GGCTAGCTACAACGA GAGTTGAA 11750 1682 UGGUCCGGA UG CCCACAC 3002 TGTGGGCA GGCTAGCTACAACGA GAGTTGAA 11751 1688 GGUCGGAU G CCCACACC 3003 GCTGTGGG GGCTAGCTACAACGA ATCCGGAC 11752 1689 GGCAGCCG G CGCAGCCA 3004 AAGCGCTG GGCTAGCTACAACGA ATCCGGAC 11752 1691 UGCCCACA G CGCUUGGC 3005 GCCAAGGG GGCTAGCTACAACGA ATCCGGAC 11752 1693 UGCCCACA G CGUUGGCCA 3005 GCCAAGGG GGCTAGCTACAACGA TGTGGGG 11754 1693 CCCACACG G CUUGGCCA 3006 TGGCCAAG GGCTAGCTACAACGA CGTGTGGG 11755 1698 AGCGCUUG G CCAGCUGC 3007 GCAGCTGG GGCTAGCTACAACGA CGTGTGGG 11755 1698 AGCGCUUG G CCAGCUGC 3008 AGCGGCAG GGCTAGCTACAACGA CAAGCGCT 11756 1702 CUUGGCCA G CUGCCGCU 3008 AGCGGCAG GGCTAGCTACAACGA CAAGCGCT 11756 1708 CAGCUUCG C CUCCAUUG 3010 TGAGCAGG GGCTAGCTACAACGA GAACCGCT 11758 1713 GCCGCUCC A UUGACAAG 3011 CTTGTCAA GGCTAGCTACAACGA GGAACCGCT 11758 1713 GCCGCUCC A UUGACAAG 3011 CTTGTCAA GGCTAGCTACAACGA GAACCGCT 11759 1713 GCCGCUCC A UUGACAAG 3011 CTTGTCAA GGCTAGCTACAACGA GAACCGCC 11761 1715	1649	AUUGCUGC A CUGUUCUA	2993	TAGAACAG GGCTAGCTACAACGA GCAGCAAT	11742
1659	1652	GCUGCACU G UUCUAUGC	2994	GCATAGAA GGCTAGCTACAACGA AGTGCAGC	11743
1659	1657	ACUGUUCU A UGCACACA	2995	TGTGTGCA GGCTAGCTACAACGA AGAACAGT	
1661 UUCUAUGC A CACAGGUU 2997 AACCTGTG GGCTAGCTACAACGA GCATAGAA 11746 1663 CUAUGCAC A CAGGUUCA 2998 TGAACCTG GGCTAGCTACAACGA GTGCATAG 11747 11746 11747 11746 1667 GCACACAG G UUCAACUC 2999 GAGTTGAA GGCTAGCTACAACGA GTGCATAG 11748 11747 11748 1672 CAGGUUCA A CUCGUCG 3000 CGGACGAG GGCTAGCTACAACGA GTGCATGA 11749 1676 UUCAACUC G UCCGGAUG 3001 CATCCGGA GGCTAGCTACAACGA GAGTTGAA 11750 11761 11751	1659	UGUUCUAU G CACACAGG	2996	CCTGTGTG GGCTAGCTACAACGA ATAGAACA	
1663		UUCUAUGC A CACAGGUU	2997	AACCTGTG GGCTAGCTACAACGA GCATAGAA	
1667 GCACACAG G UUCAACUC 2999 GAGTTGAA GGCTAGCTACAACGA CTGTGTGC 11748 1672 CAGGUUCA A CUCGUCCG 3000 CGGACGAG GGCTAGCTACAACGA TGAACCTG 11749 11750 11760 UUCAACUC G UCCGGAUG 3000 CGGACGAG GGCTAGCTACAACGA GAGTTGAA 11750 11761 117					
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1743 GGGGUCCU A UCACCUAC 3017 GTAGGTGA GGCTAGCTACAACGA AGGACCCC 11766 1746 GUCCUAUC A CCUACACC 3018 GGTGTAGG GGCTAGCTACAACGA GATAGGAC 11767 1750 UAUCACCU A CACCGAGG 3019 CCTCGGTG GGCTAGCTACAACGA AGGTGATA 11768 1752 UCACCUAC A CCGAGGGC 3020 GCCCTCGG GGCTAGCTACAACGA GTAGGTGA 11769 1759 CACCGAGG G CCACAACU 3021 AGTTGTGG GGCTAGCTACAACGA CCTCGGTG 11770 1762 CGAGGGCC A CAACUCGG 3022 CCGAGTTG GGCTAGCTACAACGA GGCCCTCG 11771 1765 GGGCCACA A CUCGGACC 3023 GGTCCGAG GGCTAGCTACAACGA TGTGGCCC 11772 1771 CAACUCGG A CCAGAGGC 3024 GCCTCTGG GGCTAGCTACAACGA CCGAGTTG 11773 1778 GACCAGAG G CCCUAUUG 3025 CAATAGGG GGCTAGCTACAACGA CTCTGGTC 11774 1783 GAGGCCCU A UUGCUGGC 3026 GCCAGCAA GGCTAGCTACAACGA AGGCCTC 11775 1786 GCCCUAUU G CUGGCACU 3027 AGTGCCAG GGCTAGCTACAACGA AATAGGGC 11776 1790 UAUUGCUG G CACUACGC 3028 GCGTAGTAGCTACAACGA CAGCAATA </td <td></td> <td></td> <td> </td> <td></td> <td></td>			 		
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1750 UAUCACCU A CACCGAGG 3019 CCTCGGTG GGCTAGCTACAACGA AGGTGATA 11768 1752 UCACCUAC A CCGAGGGC 3020 GCCCTCGG GGCTAGCTACAACGA GTAGGTGA 11769 1759 CACCGAGG G CCACAACU 3021 AGTTGTGG GGCTAGCTACAACGA CCTCGGTG 11770 1762 CGAGGGCC A CAACUCGG 3022 CCGAGTTG GGCTAGCTACAACGA GGCCCTCG 11771 1765 GGGCCACA A CUCGGACC 3023 GGTCCGAG GGCTAGCTACAACGA TGTGGCCC 11772 1771 CAACUCGG A CCAGAGGC 3024 GCCTCTGG GGCTAGCTACAACGA TGTGGCCC 11772 1778 GACCAGAG G CCCUAUUG 3025 CAATAGGG GGCTAGCTACAACGA CCGAGTTG 11774 1783 GAGGCCCU A UUGCUGGC 3026 GCCAGCAA GGCTAGCTACAACGA CTCTGGTC 11774 1786 GCCCUAUU G CUGGCACU 3027 AGTGCCAG GGCTAGCTACAACGA AGGGCCTC 11775 1790 UAUUGCUG G CACUACGC 3028 GCGTAGCTACAACGA AATAGGGC 11776 1790 UAUUGCUG G CACUACGC 3028 GCGTAGCTACAACGA CAGCAATA 11777 1792 UUGCUGGC A CUACGCAC 3029 GTGCGTAG GGCTAGCTACAACGA AGTGCCAG 11778 1795 CUGGCACU A CGCACCGC 3030 GCGGTGCG GGCTAGCTACAACGA AGTGCCAG 11779 1797 GGCACUAC G CACCGCG 3031 CCGCGGTG GGCTAGCTACAACGA GTGGCCC 11780 1799 CACUACGC A CCGCGGCC 3032 GGCCGCGG GGCTAGCTACAACGA GTGGCCT 11781 1802 UACGCACC G CGGCCGUG 3033 CACGGCCG GGCTAGCTACAACGA GGGGCTA 11782 1805 GCACCGCG G CCGUGUGG 3034 CCACACGG GGCTAGCTACAACGA CGCGGTGC 11783			 		
1752 UCACCUAC A CCGAGGGC 3020 GCCCTCGG GGCTAGCTACAACGA GTAGGTGA 11769 1759 CACCGAGG G CCACAACU 3021 AGTTGTGG GGCTAGCTACAACGA CCTCGGTG 11770 1762 CGAGGGCC A CAACUCGG 3022 CCGAGTTG GGCTAGCTACAACGA GGCCCTCG 11771 1765 GGGCCACA A CUCGGACC 3023 GGTCCGAG GGCTAGCTACAACGA TGTGGCCC 11772 1771 CAACUCGG A CCAGAGGC 3024 GCCTCTGG GGCTAGCTACAACGA CGCGGTTG 11773 1778 GACCAGAG G CCCUAUUG 3025 CAATAGGG GGCTAGCTACAACGA CTCTGGTC 11774 1783 GAGGCCCU A UUGCUGGC 3026 GCCAGCAA GGCTAGCTACAACGA AGGGCCTC 11775 1786 GCCCUAUU G CUGGCACU 3027 AGTGCCAG GGCTAGCTACAACGA AATAGGGC 11776 1790 UAUUGCUG G CACUACGC 3028 GCGTAGTG GGCTAGCTACAACGA CAGCAATA 11777 1792 UUGCUGGC A CUACGCAC 3029 GTGCGTAG GGCTAGCTACAACGA ACGACAATA 11777 1795 CUGGCACU A CGCACCGC 3030 GCGGTGCG GGCTAGCTACAACGA AGTGCCAG 11778 1797 GGCACUAC G CACCGCG 3031 CCGCGGTG GGCTAGCTACAACGA GTAGTGCC 11780 1799 CACUACGC A CCGCGGC 3032 GGCCGCGG GGCTAGCTACAACGA GTAGTGCC 11781 1802 UACGCACC G CGGCCGUG 3033 CACGGCCG GGCTAGCTACAACGA GGTGCGTA 11782 1805 GCACCGCG G CCGUGUGG 3034 CCACACGG GGCTAGCTACAACGA GGTGCGTA 11782					
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1762 CGAGGGCC A CAACUCGG 3022 CCGAGTTG GGCTAGCTACAACGA GGCCCTCG 11771 1765 GGGCCACA A CUCGGACC 3023 GGTCCGAG GGCTAGCTACAACGA TGTGGCCC 11772 1771 CAACUCGG A CCAGAGGC 3024 GCCTCTGG GGCTAGCTACAACGA CCGAGTTG 11773 1778 GACCAGAG G CCCUAUUG 3025 CAATAGGG GGCTAGCTACAACGA CTCTGGTC 11774 1783 GAGGCCCU A UUGCUGGC 3026 GCCAGCAA GGCTAGCTACAACGA AGGGCCTC 11775 1786 GCCCUAUU G CUGGCACU 3027 AGTGCCAG GGCTAGCTACAACGA AATAGGGC 11776 1790 UAUUGCUG G CACUACGC 3028 GCGTAGTG GGCTAGCTACAACGA CAGCAATA 11777 1792 UUGCUGGC A CUACGCAC 3029 GTGCGTAG GGCTAGCTACAACGA GCCAGCAA 11778 1795 CUGGCACU A CGCACCGC 3030 GCGGTGCG GGCTAGCTACAACGA AGTGCCAG 11779 1797 GGCACUAC G CACCGCGG 3031 CCGCGGTG GGCTAGCTACAACGA GTAGTGCC 11780 1799 CACUACGC A CCGCGGCC 3032 GGCCGCGG GGCTAGCTACAACGA GCGTAGTG 11781 1802 UACGCACC G CGGCCGUG 3033 CACGGCCG GGCTAGCTACAACGA GGTGCGTA 11782 1805 GCACCGCG G CCGUGUGG 3034 CCACACGG GGCTAGCTACAACGA CGCGGTGC 11783					
1765 GGGCCACA A CUCGGACC 3023 GGTCCGAG GGCTAGCTACAACGA TGTGGCCC 11772 1771 CAACUCGG A CCAGAGGC 3024 GCCTCTGG GGCTAGCTACAACGA CCGAGTTG 11773 1778 GACCAGAG G CCCUAUUG 3025 CAATAGGG GGCTAGCTACAACGA CTCTGGTC 11774 1783 GAGGCCCU A UUGCUGGC 3026 GCCAGCAA GGCTAGCTACAACGA AGGGCCTC 11775 1786 GCCCUAUU G CUGGCACU 3027 AGTGCCAG GGCTAGCTACAACGA AATAGGGC 11776 1790 UAUUGCUG G CACUACGC 3028 GCGTAGTG GGCTAGCTACAACGA CAGCAATA 11777 1792 UUGCUGGC A CUACGCAC 3029 GTGCGTAG GGCTAGCTACAACGA GCCAGCAA 11778 1795 CUGGCACU A CGCACCGC 3030 GCGGTGCG GGCTAGCTACAACGA AGTGCCAG 11779 1797 GGCACUAC G CACCGCGG 3031 CCGCGGTG GGCTAGCTACAACGA GTAGTGCC 11780 1799 CACUACGC A CCGCGGCC 3032 GGCCGCGG GGCTAGCTACAACGA GCGTAGTG 11781 1802 UACGCACC G CGGCCGUG 3033 CACGGCCG GGCTAGCTACAACGA GGTGCGTA 11782 1805 GCACCGCG G CCGUGUGG 3034 CCACACGG GGCTAGCTACAACGA CGCGGTGC 11783			}		
1771 CAACUCGG A CCAGAGGC 3024 GCCTCTGG GGCTAGCTACAACGA CCGAGTTG 11773 1778 GACCAGAG G CCCUAUUG 3025 CAATAGGG GGCTAGCTACAACGA CTCTGGTC 11774 1783 GAGGCCCU A UUGCUGGC 3026 GCCAGCAA GGCTAGCTACAACGA AGGGCCTC 11775 1786 GCCCUAUU G CUGGCACU 3027 AGTGCCAG GGCTAGCTACAACGA AATAGGGC 11776 1790 UAUUGCUG G CACUACGC 3028 GCGTAGTG GGCTAGCTACAACGA CAGCAATA 11777 1792 UUGCUGGC A CUACGCAC 3029 GTGCGTAG GGCTAGCTACAACGA GCCAGCAA 11778 1795 CUGGCACU A CGCACCGC 3030 GCGGTGCG GGCTAGCTACAACGA AGTGCCAG 11779 1797 GGCACUAC G CACCGCGG 3031 CCGCGGTG GGCTAGCTACAACGA GTAGTGCC 11780 1799 CACUACGC A CCGCGGCC 3032 GGCCGCGG GGCTAGCTACAACGA GTGTGCC 11781 1802 UACGCACC G CGGCCGUG 3033 CACGGCCG GGCTAGCTACAACGA GGTGCGTA 11782 1805 GCACCGCG G CCGUGUGG 3034 CCACACGG GGCTAGCTACAACGA CGCGGTGC 11783					
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1783 GAGGCCCU A UUGCUGGC 3026 GCCAGCAA GGCTAGCTACAACGA AGGGCCTC 11775 1786 GCCCUAUU G CUGGCACU 3027 AGTGCCAG GGCTAGCTACAACGA AATAGGGC 11776 1790 UAUUGCUG G CACUACGC 3028 GCGTAGTG GGCTAGCTACAACGA CAGCAATA 11777 1792 UUGCUGGC A CUACGCAC 3029 GTGCGTAG GGCTAGCTACAACGA GCCAGCAA 11778 1795 CUGGCACU A CGCACCGC 3030 GCGGTGCG GGCTAGCTACAACGA AGTGCCAG 11779 1797 GGCACUAC G CACCGCGG 3031 CCGCGGTG GGCTAGCTACAACGA GTAGTGCC 11780 1799 CACUACGC A CCGCGGCC 3032 GGCCGCGG GGCTAGCTACAACGA GCGTAGTG 11781 1802 UACGCACC G CGGCCGUG 3033 CACGGCCG GGCTAGCTACAACGA GGTGCGTA 11782 1805 GCACCGCG G CCGUGUGG 3034 CCACACGG GGCTAGCTACAACGA CGCGGTGC 11783					
1786 GCCCUAUU G CUGGCACU 3027 AGTGCCAG GGCTAGCTACAACGA AATAGGGC 11776 1790 UAUUGCUG G CACUACGC 3028 GCGTAGTG GGCTAGCTACAACGA CAGCAATA 11777 1792 UUGCUGGC A CUACGCAC 3029 GTGCGTAG GGCTAGCTACAACGA GCCAGCAA 11778 1795 CUGGCACU A CGCACCGC 3030 GCGGTGCG GGCTAGCTACAACGA AGTGCCAG 11779 1797 GGCACUAC G CACCGCGG 3031 CCGCGGTG GGCTAGCTACAACGA GTAGTGCC 11780 1799 CACUACGC A CCGCGGCC 3032 GGCCGCGG GGCTAGCTACAACGA GCGTAGTG 11781 1802 UACGCACC G CGGCCGUG 3033 CACGGCCG GGCTAGCTACAACGA GGTGCGTA 11782 1805 GCACCGCG G CCGUGUGG 3034 CCACACGG GGCTAGCTACAACGA CGCGGTGC 11783					
1790 UAUUGCUG G CACUACGC 3028 GCGTAGTG GGCTAGCTACAACGA CAGCAATA 11777 1792 UUGCUGGC A CUACGCAC 3029 GTGCGTAG GGCTAGCTACAACGA GCCAGCAA 11778 1795 CUGGCACU A CGCACCGC 3030 GCGGTGCG GGCTAGCTACAACGA AGTGCCAG 11779 1797 GGCACUAC G CACCGCGG 3031 CCGCGGTG GGCTAGCTACAACGA GTAGTGCC 11780 1799 CACUACGC A CCGCGGCC 3032 GGCCGCGG GGCTAGCTACAACGA GCGTAGTG 11781 1802 UACGCACC G CGGCCGUG 3033 CACGGCCG GGCTAGCTACAACGA GGTGCGTA 11782 1805 GCACCGCG G CCGUGUGG 3034 CCACACGG GGCTAGCTACAACGA CGCGGTGC 11783	_			<u> </u>	
1792 UUGCUGGC A CUACGCAC 3029 GTGCGTAG GGCTAGCTACAACGA GCCAGCAA 11778 1795 CUGGCACU A CGCACCGC 3030 GCGGTGCG GGCTAGCTACAACGA AGTGCCAG 11779 1797 GGCACUAC G CACCGCGG 3031 CCGCGGTG GGCTAGCTACAACGA GTAGTGCC 11780 1799 CACUACGC A CCGCGGCC 3032 GGCCGCGG GGCTAGCTACAACGA GCGTAGTG 11781 1802 UACGCACC G CGGCCGUG 3033 CACGGCCG GGCTAGCTACAACGA GGTGCGTA 11782 1805 GCACCGCG G CCGUGUGG 3034 CCACACGG GGCTAGCTACAACGA CGCGGTGC 11783					
1795 CUGGCACU A CGCACCGC 3030 GCGGTGCG GGCTAGCTACAACGA AGTGCCAG 11779 1797 GGCACUAC G CACCGCGG 3031 CCGCGGTG GGCTAGCTACAACGA GTAGTGCC 11780 1799 CACUACGC A CCGCGGCC 3032 GGCCGCGG GGCTAGCTACAACGA GCGTAGTG 11781 1802 UACGCACC G CGGCCGUG 3033 CACGGCCG GGCTAGCTACAACGA GGTGCGTA 11782 1805 GCACCGCG G CCGUGUGG 3034 CCACACGG GGCTAGCTACAACGA CGCGGTGC 11783					
1797 GGCACUAC G CACCGCGG 3031 CCGCGGTG GGCTAGCTACAACGA GTAGTGCC 11780 1799 CACUACGC A CCGCGGCC 3032 GGCCGCGG GGCTAGCTACAACGA GCGTAGTG 11781 1802 UACGCACC G CGGCCGUG 3033 CACGGCCG GGCTAGCTACAACGA GGTGCGTA 11782 1805 GCACCGCG G CCGUGUGG 3034 CCACACGG GGCTAGCTACAACGA CGCGGTGC 11783					
1799 CACUACGC A CCGCGGCC 3032 GGCCGCGG GGCTAGCTACAACGA GCGTAGTG 11781 1802 UACGCACC G CGGCCGUG 3033 CACGGCCG GGCTAGCTACAACGA GGTGCGTA 11782 1805 GCACCGCG G CCGUGUGG 3034 CCACACGG GGCTAGCTACAACGA CGCGGTGC 11783					
1802UACGCACC G CGGCCGUG3033CACGGCCG GGCTAGCTACAACGA GGTGCGTA117821805GCACCGCG G CCGUGUGG3034CCACACGG GGCTAGCTACAACGA CGCGGTGC11783					
1805 GCACCGCG G CCGUGUGG 3034 CCACACGG GGCTAGCTACAACGA CGCGGTGC 11783			}		
					
1808 CCGCGGCC G UGUGGUAU 3035 ATACCACA GGCTAGCTACAACGA GGCCGCGG 11784	—	_ 	 		11783
	1808	CCGCGGCC G UGUGGUAU	3035	ATACCACA GGCTAGCTACAACGA GGCCGCGG	11784

1810	GCGGCCGU G UGGUAUCG	3036	CGATACCA GGCTAGCTACAACGA ACGGCCGC	11785
1813	GCCGUGUG G UAUCGUAC	3037	GTACGATA GGCTAGCTACAACGA CACACGGC	11786
1815	CGUGUGGU A UCGUACCC	3038	GGGTACGA GGCTAGCTACAACGA ACCACACG	11787
1818	GUGGUAUC G UACCCGCA	3039	TGCGGGTA GGCTAGCTACAACGA GATACCAC	11788
1820	GGUAUCGU A CCCGCAUC	3040	GATGCGGG GGCTAGCTACAACGA ACGATACC	11789
1824	UCGUACCC G CAUCGCAG	3041	CTGCGATG GGCTAGCTACAACGA GGGTACGA	11790
1826	GUACCCGC A UCGCAGGU	3042	ACCTGCGA GGCTAGCTACAACGA GCGGGTAC	11791
1829	CCCGCAUC G CAGGUAUG	3043	CATACCTG GGCTAGCTACAACGA GATGCGGG	11792
1833	CAUCGCAG G UAUGUGGU	3044	ACCACATA GGCTAGCTACAACGA CTGCGATG	11793
1835	UCGCAGGU A UGUGGUCC	3045	GGACCACA GGCTAGCTACAACGA ACCTGCGA	11794
1837	GCAGGUAU G UGGUCCAG	3046	CTGGACCA GGCTAGCTACAACGA ATACCTGC	11795
1840	GGUAUGUG G UCCAGUGU	3047	ACACTGGA GGCTAGCTACAACGA CACATACC	11796
1845	GUGGUCCA G UGUAUUGC	3048	GCAATACA GGCTAGCTACAACGA TGGACCAC	11797
1847	GGUCCAGU G UAUUGCUU	3049	AAGCAATA GGCTAGCTACAACGA ACTGGACC	11798
1849	UCCAGUGU A UUGCUUCA	3050	TGAAGCAA GGCTAGCTACAACGA ACACTGGA	11799
1852	AGUGUAUU G CUUCACCC	3051	GGGTGAAG GGCTAGCTACAACGA AATACACT	11800
1857	AUUGCUUC A CCCCAAGC	3052	GCTTGGGG GGCTAGCTACAACGA GAAGCAAT	11801
1864	CACCCCAA G CCCUGUUG	3053	CAACAGGG GGCTAGCTACAACGA TTGGGGTG	11802
1869	CAAGCCCU G UUGUGGUG	3054	CACCACAA GGCTAGCTACAACGA AGGGCTTG	11803
1872	GCCCUGUU G UGGUGGGG	3055	CCCCACCA GGCTAGCTACAACGA AACAGGGC	11804
1875	CUGUUGUG G UGGGGACG	3056	CGTCCCCA GGCTAGCTACAACGA CACAACAG	11805
1881	UGGUGGGG A CGACCGAC	3057	GTCGGTCG GGCTAGCTACAACGA CCCCACCA	11806
1884	UGGGACG A CCGACCGU	3058	ACGGTCGG GGCTAGCTACAACGA CGTCCCCA	11807
1888	GACGACCG A CCGUUUCG	3059	CGAAACGG GGCTAGCTACAACGA CGGTCGTC	11808
1891	GACCGACC G UUUCGGCG	3060	CGCCGAAA GGCTAGCTACAACGA GGTCGGTC	11809
1897	CCGUUUCG G CGCCCCA	3061	TGGGGGC GGCTAGCTACAACGA CGAAACGG	11810
1899	GUUUCGGC G CCCCCACG	3062	CGTGGGG GGCTAGCTACAACGA GCCGAAAC	11811
1905	GCGCCCC A CGUAUAAC	3062	GTTATACG GGCTAGCTACAACGA GGGGGCGC	11812
1907	GCCCCAC G UAUAACUG	3064	CAGTTATA GGCTAGCTACAACGA GTGGGGGC	11812
1909	CCCACGU A UAACUGGG	3065	CCCAGTTA GGCTAGCTACAACGA GCGGGGGG	11814
1912	CACGUAUA A CUGGGGGG	3066	CCCCCAG GGCTAGCTACAACGA TATACGTG	
1920	ACUGGGGG G CGAACGAG	3067		11815
1924	GGGGGGA A CGAGACGG	3067	CTCGTTCG GGCTAGCTACAACGA CCCCCAGT	11816
1929	CGAACGAG A CGGACGUG	3069	CCGTCTCG GGCTAGCTACAACGA TCGCCCCC	11817
1933	 		CACGTCCG GGCTAGCTACAACGA CTCGTTCG	11818
	CGAGACGG A CGUGCUGC	3070	GCAGCACG GGCTAGCTACAACGA CCGTCTCG	11819
1935	AGACGGAC G UGCUGCUC	3071	GAGCAGCA GGCTAGCTACAACGA GTCCGTCT	11820
	ACGGACGU G CUGCUCCU	3072	AGGAGCAG GGCTAGCTACAACGA ACGTCCGT	11821
1940	GACGUGCU G CUCCUCAA	3073	TTGAGGAG GGCTAGCTACAACGA AGCACGTC	11822
1948	GCUCCUCA A CAACACGC	3074	GCGTGTTG GGCTAGCTACAACGA TGAGGAGC	11823
1951	CCUCAACA A CACGCGGC	3075	GCCGCGTG GGCTAGCTACAACGA TGTTGAGG	11824
1953	UCAACAAC A CGCGGCCG	3076	CGGCCGCG GGCTAGCTACAACGA GTTGTTGA	11825
1955	AACAACAC G CGGCCGCC	3077	GGCGGCCG GGCTAGCTACAACGA GTGTTGTT	11826
1958	AACACGCG G CCGCCGCA	3078	TGCGGCGG GGCTAGCTACAACGA CGCGTGTT	11827
1961	ACGCGGCC G CCGCAAGG	3079	CCTTGCGG GGCTAGCTACAACGA GGCCGCGT	11828
1964	CGGCCGCC G CAAGGCAA	3080	TTGCCTTG GGCTAGCTACAACGA GGCGGCCG	11829
1969	GCCGCAAG G CAACUGGU	3081	ACCAGTTG GGCTAGCTACAACGA CTTGCGGC	11830
1972	GCAAGGCA A CUGGUUCG	3082	CGAACCAG GGCTAGCTACAACGA TGCCTTGC	11831
1976	GGCAACUG G UUCGGCUG	3083	CAGCCGAA GGCTAGCTACAACGA CAGTTGCC	11832
1981	CUGGUUCG G CUGCACAU	3084	ATGTGCAG GGCTAGCTACAACGA CGAACCAG	11833
1984	GUUCGGCU G CACAUGGA	3085	TCCATGTG GGCTAGCTACAACGA AGCCGAAC	11834
1986	UCGGCUGC A CAUGGAUG	3086	CATCCATG GGCTAGCTACAACGA GCAGCCGA	11835
1988	GGCUGCAC A UGGAUGAA	3087	TTCATCCA GGCTAGCTACAACGA GTGCAGCC	11836
1992	GCACAUGG A UGAAUGGC	3088	GCCATTCA GGCTAGCTACAACGA CCATGTGC	11837
1996	AUGGAUGA A UGGCACUG	3089	CAGTGCCA GGCTAGCTACAACGA TCATCCAT	11838
1999	GAUGAAUG G CACUGGGU	3090	ACCCAGTG GGCTAGCTACAACGA CATTCATC	11839
2001	UGAAUGGC A CUGGGUUC	3091	GAACCCAG GGCTAGCTACAACGA GCCATTCA	11840

2016					
	2006	GGCACUGG G UUCACCAA	3092	TTGGTGAA GGCTAGCTACAACGA CCAGTGCC	11841
2018 ACCARAGC & UGCGGGGG 3095 GCCCCCCA GGCTAGCTACAACGA ACGTCTTG 1.18 2026 GUGCGGGG & CCCCCCGU 3097 ACGGGGG GGCTAGCTACAACGA ACGTCTTG 1.18 2023 GGCCCCC & UGCAACAU 3098 ATGTTCA GGTAGCTACAACGA CCCCGCAC 1.18 2023 GGCCCCCC & UGCAACAU 3099 ACGGGGG GGCTAGCTACAACGA CCCGGGGC 1.18 2023 GCCCCCCGU & GCAACAUG 3099 ACGGGGGC GGCTAGCTACAACGA ACGGGGGGC 1.18 2024 CCCCCGGU & CAACAUG 3099 ACGGGGG GGTAGCTACAACGA ACGGGGGG 1.18 2024 UCGGGGG & ACAUGGG 3100 CCCCCATG GGCTAGCTACAACGA CTGCACGG 1.18 2024 UCGGGGG & UCGGGGGG 3101 CCCCCATG GGCTAGCTACAACGA CCCCCCG 1.18 2025 GGGGGCG & UAACGACA 3102 GTTACCGG GGCTAGCTACAACGA CCCCCCCG 1.18 2025 GGGGGGG & UAACGACA 3103 TGTCGTTA GGCTAGCTACAACGA CCCCCCCG 1.18 2025 GGGGGGGA ACGCCCCC 3104 AGGTGTCG GGCTAGCTACAACGA CCCCCCCC 1.18 2025 CGGUAACG A CACCUUAA 3105 TTAAGGTG GGCTAGCTACAACGA CGGTCCCC 1.18 2026 ACACCUUA AGGACCCU 3104 AGGTGTCG GGCTAGCTACAACGA CGGTTACCG 1.18 2027 CGUAACG A CCUAACC 3106 GGTTAAGG GGCTAGCTACAACGA CGGTTACCG 1.18 2027 CUUAACCU G CCCCACGG 3107 GGGGCAGG GGCTACCTACAACGA CGGTTACC 1.18 2027 CUUAACCU G CCCCACGG 3109 CCGGCCCC 3109 GGGCAGG GGCTACCTACAACGA CCGTTACAC 3102 2028 CCCCACGG A CUGCCCCC 3103 CCGGGGGG GGCTACCTACAACGA AGGTTACAG 3102 2028 CCCCACGG A CUGCCCCC 3104 CCGGGGGG GGCTAGCTACAACGA AGGTTACAG 3102 2028 CCCCACGG A CUGCCCCCAGG 3111 CCGGGGG GGCTAGCTACAACGA AGGTCCGGT 1.18 2029 CUUCAACCU G CCCCACGG 3112 CCGGAGGG GGCTAGCTACAACGA AGGGCCCCC 1.18 2020 CCCCACGG A CUGCCCGA 3111 CCGGGGG GGCTAGCTACAACGA AGGGCCCGG 1.18 2020 CCCCACGG A CUGCCCGA 3112 CCGGGGGG GGCTAGCTACAACGA GGGCCCGG 1.18 2020 CCCCACGG A CUGCCCGA 3112 CCGGGGGG GGCTAGCTACAACGA CCGGGGG 1.18 2020 CCCCACGG A CUGCCCGA 3114 CCGGGGG GGCTAGCTACAACGA CCGGGGG 1.18 2020 CCGCACGG A CUGCCGGG 3112 CCCCACGG GGCTAGCTACAACGA CCGCACGG 1.18 2112 CCACGUAC G CAAAGUG 3114 CCCCACGG GGCTAGCTACAACGA	_				11842
2020	2016		3094	CCCGCACG GGCTAGCTACAACGA CTTGGTGA	11843
2026	2018		3095		11844
2033 GGCCCCC G UGCAACAU 3098 ATGTTCA GGCTAGCTACAACGA AGGGGGC 119 2036 CCCCCCGGG G CAACAUCG 3099 GGTTGTTG GGCTAGCTACAACGA AGGGGGGG 118 2038 CCCCGGGGG 3100 CCCCCGAT GGCTAGCTACAACGA TGCACGGG 128 2040 CGGGGACA A UCGGGGGG 3110 CCCCCCGAT GGCTAGCTACAACGA TGCACCGG 118 2049 UCGGGGGG G CCGGUAAC 3102 GTTACCGG GGCTAGCTACAACGA CCCCCCGA 118 2053 GGGGGCG G UAACGACA 3103 TGTCGTTA GGCTAGCTACAACGA CCCCCCGA 118 2055 GGCCGGUA A CACCUUA 3104 AGGTGTCG GGCTAGCTACAACGA CCCCCCCCC 118 2055 GGCGGGUA A CACCUUA 3105 TGTCGTTA GGCTAGCTACAACGA CGTCACCCC 118 2056 GGCGGGUA A CACCUUA 3105 TGTCGTTA GGCTAGCTACAACGA CGTCACCCC 118 2057 CGUGAACG A CACCUUA 3105 TTAAGGTG GGCTAGCTACAACGA CGTTACCC 118 2067 ACACCUUA A CCUGCCCC 3106 GGTTAGGGGGGTAGCTACAACGA AGGTTACA 2071 CUUAACCU G CCCCACGG 3108 CCGTGGGG GGCTAGCTACAACGA AGGTTAGA 2071 CUUAACCU G CCCCACGG 3109 GCAGTCCG GGCTAGCTACAACGA AGGTTAGA 2076 CCUGCCCC A CGGACUGC 3109 GCAGTCCG GGCTAGCTACAACGA AGGTTAGA 2077 CCUGACCC A CGGACUGC 3110 GGAGACGA GGCTAGCTACAACGA AGGTCAGT 2078 CCCCCACGG 3111 TCCGGAGG GGCTAGCTACAACGA AGGTCAGT 2079 UUCCGGAA G CCCCCCGAG 3111 TCCGGAGG GGCTAGCTACAACGA AGTCCGGG 118 2079 CCCGAGGC C CUUCCGGA 3111 TCCGGAGG GGCTAGCTACAACGA AGTCCGGG 118 2079 CCCGGAGC A CUUCCGGA 3111 TCCGGAGG GGCTAGCTACAACGA AGTCCGGG 118 2079 CCGGAGCC A CUUCCGGA 3112 TCGGGGGG GGCTAGCTACAACGA CCTCGGGGT 118 2106 CCGGAGCC A CUUCCGGA 3115 TCGGGTAG GGCTAGCTACAACGA AGTCCGGG 118 2107 CACCUUAC C CAAAGUGC 3116 ACTTTGCG GGCTAGCTACAACGA ACTTGCGGT 118 2108 CCCCGAGGC C CUUACGCA 3115 TGCGTAG GGCTAGCTACAACGA ACTTGCGGGT 118 2109 CCCGGAGC G CUUACGCA 3115 TGCGTAG GGCTAGCTACAACGA ACTTGCGGGT 118 2100 ACCCCGAG G CCCGAAG 3117 CCCGGAGCCA CACCTAGA GGCCCCGAC 118 2111 UACCCAA G CCCGAGG 3117 GCCCTTTC GGCTAGCTACAACGA ACTTTCCGGGGT 118 2112 CACCUUAC C CAAAGUGC 3117 CCCGGACC GGCTAGCTACAACGA ACTTTCCGGGGT	2020	CAAGACGU G CGGGGGCC	3096	GGCCCCG GGCTAGCTACAACGA ACGTCTTG	11845
2035 CCCCCCGU G CARCAUCG 30.99 CGATGTTG GGCTAGCTACAACGA ACGGGGGG 118 2040 CGUGCACA C NUCGGGGGG 31.00 CCCCCAGA GGCTACACACGA TGCACGGG 118 2040 CGUGCACA C NUCGGGGGG 31.01 CCCCCCCGA GGTTACAACGA GTCCACGG 118 2049 UCGGGGGG G CGGUUAC 31.02 GTTACCGG GGCTAGCTACAACGA CCCCCCGA 118 2053 GGGGCCG G UAACGACA 31.02 GTTACCGG GGCTAGCTACAACGA CGCCCCCC 118 2056 GGCCGGUA A CGACACC 31.04 AGGTGTG GGCTAGCTACAACGA TACCGGCCC 118 2057 CGUAACGA C ACCUUAA 31.05 TTAAGGTG GGCTAGCTACAACGA TACCGGCC 118 2067 CGUAACGA C ACCUUAA 31.05 TTAAGGTG GGCTAGCTACAACGA TACCGGCT 128 2067 ACACCUUA A CCUGCCC 31.07 GGGGCAGG GGCTAGCTACAACGA TCCTTACA 118 2067 ACACCUUA A CCUGCCC 31.07 GGGGCAGG GGCTAGCTACAACGA TCCTTACA 118 2076 CCUGCACCA CGGG 31.08 CCCTGGGGG GGCTAGCTACAACGA TCCTTACA 118 2076 CCUGCCCC A CGGACUGC 31.09 GGATGAGC GGCTACACACGA AGGTTACA 118 2076 CCUGCCCC A CGGACUGC 31.09 GCATGCCG GGCTAGCTACAACGA GGGCCAGC 118 2076 CCUGCCCC A CGGACUGC 31.01 GCAAGCAG GGCTAGCTACAACGA AGTCCGTA 128 2076 CCUGCCCC A CGGACUGC 31.01 GCAAGCAG GGCTAGCTACAACGA AGTCCGTA 128 2077 CUUCCGGA G CUCCGGGA 31.11 TCCGGGAG GGCTAGCTACAACGA AGTCCGTA 128 2078 CUCCGGAG G CACCUUAC 31.12 TCCGGGAG GGCTAGCTACAACGA AGTCCGTA 128 2079 UUCCGGAA G CACCCCGA 31.12 TCCGGGAG GGCTAGCTACAACGA AGTCCGTA 128 2079 CCCGAAGGC C CUUACGGA 31.13 CCCGGAGG GGCTAGCTACAACGA AGTCCGTG 118 2103 ACCCGAAG G CCACUUAC 31.14 GTAAGTGG GGCTAGCTACAACGA AGTCCGTG 118 2104 CCCAUACG C CUUACGGA 31.15 TGCGTAAG GGCTAGCTACAACGA AGTCCGTG 118 2105 CCGAAGGC C CUUACGCA 31.15 TGCGTAAG GGCTAGCTACAACGA AGTCCGGGT 118 2106 CCGAAGGC C CUUACGCA 31.15 TGCGTAAG GGCTAGCTACAACGA AGTCGGGT 118 2107 CCCGAAGGC C CUUACGCA 31.15 TGCGTAAG GGCTAGCTACAACGA AGTCGGGT 118 2108 CCCACAGG G CCACUUAC 31.16 GTAAGTGG GGCTAGCTACAACGA AGTCGGGT 118 2110 GGCCACUU A CCCCACAG 31.17 TGCGGAG GGCTAGCTACAACGA AGTCGGGT 118 2111	2026	GUGCGGGG G CCCCCCGU	3097	ACGGGGG GGCTAGCTACAACGA CCCCGCAC	11846
2038 CCGUGGCA A CAUCGGGG 3100 CCCCGATG GGCTAGCTACAACGA TGCACGG 118 2049 UGGGGGGG G CCGGUAAC 3101 CCCCCGA GGCTAGCTACAACGA GTGCACGA 118 2052 GGGGGCG G UAACGACA 3103 GTTACCGG GGCTAGCTACAACGA CCCCCCGA 118 2053 GGGGGCG G UAACGACA 3103 TGTGGTTA GGCTAGCTACAACGA CGGCCCCC 118 2056 GGCCGGUA A CAGCACCU 3104 AGGTGTCG GGCTAGCTACAACGA CAGCCCC 118 2057 GGGUAACG A CACCUUAA 3105 TTAAGGTG GGCTAGCTACAACGA CTCCTCACA 2061 GUAACGAC A CCUUAACC 3106 GGTTAAGG GGCTAGCTACAACGA CTCTTACCG 118 2061 ACACCUUA A CUGGCCCC 3107 GGGGCAGG GGCTAGCTACAACGA CTGTTAC 118 2067 ACACCUUA A CUGGCCCC 3107 GGGGCAGG GGCTAGCTACAACGA CAGTGTT 118 2071 CUUAACCU G CCCCACGG 3108 CCGTGGGG GGCTAGCTACAACGA AGGTTATA 118 2076 CCUCCCCC A CGGACUGC 3109 GGAGTCGG GGCTAGCTACAACGA AGGTTAG 118 2076 CCUCCCCC A CGGACUGC 3110 GGAAGCAG GGCTAGCTACAACGA AGGTTAG 118 2077 CUUACCU G CUCCCGGA 3111 TCCGGAGG GGCTAGCTACAACGA AGGTCAGG 118 2080 CCCCCACGG A CUGCUUCC 3110 GGAAGCAG GGCTAGCTACAACGA CAGTCAGGG 118 2093 UUCCGGAA G CUCCCGGA 3111 TCCGGAGG GGCTAGCTACAACGA AGTCCGTG 118 2093 UUCCGGAA G CACCCCGAG 3112 TCCGGGGG GGCTAGCTACAACGA CTCCGGGG 118 2015 CCGGAAGC A CCCCGAGG 3114 TCAGGGGG GGCTAGCTACAACGA CTCCGGGG 118 2106 CCCGAGGC C CUUACCGA 3115 TCCGGGGG GGCTAGCTACAACGA CTCCGGGG 118 2107 ACCCCCAG G CAAAGUGC 3116 TCAGGGGG GGCTAGCTACAACGA CTCGGGGT 118 2108 CCCGAGGG C CUUACCA 3114 TAAGGTG GGCTAGCTACAACGA CTCGGGGT 118 2109 CCCGAGGG C CUUACCA 3115 TCGGGGG GGCTAGCTACAACGA AGTCGG 118 2101 GGCCACUU A CGCAAAGUG 3116 ACTTTCGG GCTAGCTACAACGA AGTGGCC 118 2110 GGCCACUU A CGCAAAGUG 3117 GCACTTTG GGCTAGCTACAACGA ACTTTGGG 118 2111 UACCCAAA G UGCGGGGC 3120 GCCCCGAA GCCTAGCTACAACGA ACTTTGGG 118 2112 CACUUAC G CAAAGUGC 3117 GCACTTTG GGCTAGCTACAACGA ACTTTGGG 118 2113 CUUAGUAC G CUUAGCAG 3126 GCCCCGAA GCCTAGCTACAACGA ACTTTGGG 118 2124 ACAUCACA G CUUAGCAG 3126	2033	GGCCCCC G UGCAACAU	3098	ATGTTGCA GGCTAGCTACAACGA GGGGGGCC	11847
2049	2035	CCCCCGU G CAACAUCG	3099	CGATGTTG GGCTAGCTACAACGA ACGGGGGG	11848
2049	2038	CCCGUGCA A CAUCGGGG	3100	CCCCGATG GGCTAGCTACAACGA TGCACGGG	11849
2053 GGGGGCCG G UAACGACA 3103 TGTCGTTA GGCTAGCTACAACGA CGGCCCCC 118 2056 GGCCGGUA A CGACACU 3104 AGGTGTCG GGCTAGCTACAACGA TACCGGCC 118 2061 GUAAGGAC A CACCUUAA 3105 TTAAGGTG GGCTAGCTACAACGA GTTACCA 118 2061 GUAAGGAC A CCUUAACC 3106 GGTTAGGG GGCTAGCTACAACGA GTTACCA 118 2067 ACACCUUA A CCUGCCC 3107 GGGGCAGG GGCTAGCTACAACGA GTCGTTAC 118 2071 CUUAACCU C CCCACGG 3108 CCGTGGGG GGCTAGCTACAACGA AGGTTAAG 118 2076 CCUGCCCC A CGGACUGC 3109 GCAGTCGG GGCTAGCTACAACGA GGGCAGG 118 2076 CCUGCCCC A CGGACUGC 3109 GCAGTCGG GGCTAGCTACAACGA GGGCAGG 118 2078 CCCCACGG A CUUCCC 3110 GGAAGCAG GGCTAGCTACAACGA CCGTGGGG 118 2080 CCCCACGG A CUUCCC 3110 GGAAGCAG GGCTAGCTACAACGA CCGTGGGG 118 2093 UUCCGGAA G CCCCGAAG 3111 TCCGGAAG GGCTAGCTACAACGA CCGTGGGG 118 2095 CCGGAAGG A CCCCGAAG 3112 TCCGGAAG GGCTAGCTACAACGA TTCCGGAA 118 2103 ACCCCGAG G CCCCGAAG 3113 CCTCGGGG GGCTAGCTACAACGA TTCCGGAA 118 2104 CCGAAGGC A CUUACCCA 3114 GTAAGTG GGCTAGCTACAACGA CTCGGGGT 118 2110 GGCCACUU A CGCAAAGU 3114 GTAAGTG GGCTAGCTACAACGA GCCTCGGG 118 21110 GGCCACUU A CGCAAAGU 3115 TGCGTAAG GGCTAGCTACAACGA GCCTCGGG 118 2112 CCACUUAC G CAAAGUGC 3117 GCACTTG GGCTAGCTACAACGA AGTGGCC 118 2117 UACGCAAA G UGCCGGGC 3118 GAACCGCA GGCTAGCTACAACGA AGTGGCC 118 2119 CGCAAACG GGGUTAGCTACAACGA AGTGGGC 118 2129 GGUUCGGG G UUCGGGGC 3120 GCCCCGAA GGCTAGCTACAACGA AGTTTGCG 118 2129 GGUUCGG G UUCACACC 3122 GCCCCGAA GGCTAGCTACAACGA CCCCGAACC 118 2129 GGUUCGG G UUCACACC 3120 GCCCCGAA GGCTAGCTACAACGA CCCCAACC 118 2129 GGUUCGG G UUCACACC 3120 GCCCCGAA GGCTAGCTACAACGA CCCAAACG 118 2129 GGUUCGGG G CUUGGGU 3120 GCCCCGAACG GGCTAGCTACAACGA CCCAAACG 118 2129 GGUUCGGG G CUUGGGGC 3120 GCCCCGAACG GGCTAGCTACAACGA CCCAAACG 118 2129 GGUUCGG G UUCACACC 3120 GCCCCGAACG GGCTAGCTACAACGA CCCACACC 118 2129 GGUUCGGG G UUCACACC 3120 GCCCCGAACG GGCTAGCTACA	2040	CGUGCAAC A UCGGGGGG	3101	CCCCCGA GGCTAGCTACAACGA GTTGCACG	11850
2056	2049	UCGGGGG G CCGGUAAC	3102	GTTACCGG GGCTAGCTACAACGA CCCCCCGA	11851
2056	2053	GGGGCCG G UAACGACA	3103	TGTCGTTA GGCTAGCTACAACGA CGGCCCCC	11852
2059		GGCCGGUA A CGACACCU	3104		11853
2061 GUAACGAC A CCUUAACC 3106 GGTTAAGG GGCTAGCTACAACGA GTCGTTAC 118 2067 ACACCUUA A CCUGCCCC 3107 GGGCAGG GGCTAGCTACAACGA TAAGGTTAT 118 2071 CUUAACCU G CCCCACGG 3108 GCGGTGGGG GGCTAGCTACAACGA AGGTTAAG 118 2076 CCUGCCCC A CGGACUGC 3109 GCAGTCCG GGCTAGCTACAACGA AGGTTAAG 118 2080 CCCCACGG A CUGCUUCCC 3110 GGAAGCAG GGCTAGCTACAACGA GGGGCAGG 118 2083 CACGGACU G CUUCCGGA 3111 TCCGGAAG GGGTAGCTACAACGA AGTCCGTG 118 2093 UUCCGGAA G CACCCCGA 3112 TCCGGAGA GGGTAGCTACAACGA AGTCCGTG 118 2093 UUCCGGAA G CACCCCGA 3112 TCCGGAGG GGCTAGCTACAACGA AGTCCGTG 118 2095 CCGGAAGC A CCCCGAGG 3113 CCTCGGGG GGCTAGCTACAACGA GTTCCGGAT 118 2103 ACCCCGAG G CACUUACC 3114 GTAAGTGG GGCTAGCTACAACGA GTTCCGGG 118 2110 GCCACUU A CGCAAAGU 3115 TGCGTAAG GGCTAGCTACAACGA GCCTCGG 118 2111 GCCACAAGU AGCAAAGU 3116 ACTTTGCG GGCTAGCTACAACGA AAGTGGCC 1212 CCACUUAC CAAAGUUCC 3118 GAACCGCA GGCTAGCTACAACGA AAGTGGCC 1212 CCACUUAC CAAAGUUCC 3118 GAACCGCA GGCTAGCTACAACGA TTTGCGTA 118 2117 UACGCAAA G UGCGGUUC 3118 GAACCGC GGCTAGCTACAACGA ACTTTGCG 118 2119 CCCAAAGU GGGUUCGG 3120 CGCCCGAA GGCTAGCTACAACGA ACTTTGCG 118 2122 AAAGUGCG G UUCGGGG 3120 CGCCCGAA GGCTAGCTACAACGA ACTTTGCG 118 2123 AAGUGCGG G UUCGGGG 3120 GCCCCGAA GGCTAGCTACAACGA CCCGAACC 118 2124 ACCCUUGA G UUAACACC 3122 GGTCTAGA GGCTAGCTACAACGA CCCGAACC 118 2125 GGGCUUG G UUAACACC 3122 GGTCTAGA GGCTAGCTACAACGA CCCGAACC 118 2126 CUUGGUU A CACCUAGA 3123 TCTAGGTG GGCTAGCTACAACGA CACGACC 118 2127 ACCCUUGA A UGCUUACA 3124 CATCTAGG GGCTAGCTACAACGA CACGACCT 118 2128 CUUGGUA A UGCUUACA 3125 ACTATGCA GGCTAGCTACAACGA CACGACCT 129 2129 GGUUCGG A UGACUAC 3126 GTAACTAA GGCTAGCTACAACGA CACGACCT 129 2121 CUUGGUA A CCCUAGA 3127 GTCAACTA GGCTAGCTACAACGA CACGACCT 118 2124 ACCCUAGA A UGACCCC 3136 GGGTAGCTACAACGA ACTCTAG 118					11854
2067 ACACCUUA A CCUGCCCC 3107 GGGGCAGG GGCTAGCTACAACGA TAAGGTGT 118				· ·	
2071	H				
2076					
2080					11857
2083					11858
2093 UUCCGGAA G CACCCCGA 3112 TCGGGGT GGCTACTACAACGA TTCCGGAA 118					11859
2095 CCGGAAGC A CCCCGAGG 3113 CCTCGGGG GGCTAGCTACAACGA GCTTCCGG 118					11860
2103 ACCCCGAG G CCACUUAC 3114 GTAAGTGG GGCTAGCTACAACGA CTCGGGGT 118					11861
21106			-	CCTCGGGG GGCTAGCTACAACGA GCTTCCGG	11862
2110 GGCCACUU A CGCAAAGU 3116 ACTTTGCG GGCTAGCTACAACGA AAGTGGC 118	——				11863
2112 CCACUUAC G CAAAGUGC 3117 GCACTTTG GGCTACAACGA GTAAGTGG 118 2117 UACGCAAA G UGCGGUUC 3118 GAACCGCA GGCTAGCACACGA TTTGCGTA 118 2119 CGCAAAGU G CGGUUCGG 3119 CCGAACCG GGCTAGCTACAACGA CTTTGCG 118 2122 AAAGUGCG G UUCGGGGC 3120 GCCCCGAA GGCTAGCTACAACGA CGCCACTTT 118 2129 GGUUCGGG G CCUUGGUU 3121 AACCAAGG GGCTAGCTACAACGA CCCGAACC 118 2135 GGGCCUUG G UUAACACC 3122 GGTGTTAA GGCTACAACGA CAAGGCCC 118 2139 CUUGGUUA A CACCUAGA 3123 TCTAGGTG GGCTACCAACGA TAACCAAG 118 2141 UGGUUAAC A CCUAGAUG 3124 CATCTAGCA GGCTAGCTACAACGA TAACCAA 118 2147 ACACCUAGA A UGCAUAGU 3124 CATCTAGCA GGCTAGCTACAACGA ATCTAGGT 118 2149 ACCUAGAU G CAUAGUUG 3126 CAACTATG GGCTAGCTACAACGA ATCTAGGT 118 2151 CUAGAUGC A UAGUUGAC 3128 GTAGTCAACGA GCAACTATG 118 2154 GAUGACUA A CCCAUACA 3130 TGTATGGG GGCTAGCTACAACGA CATCTACA 118	2106	CCGAGGCC A CUUACGCA	3115	TGCGTAAG GGCTAGCTACAACGA GGCCTCGG	11864
2117	2110	GGCCACUU A CGCAAAGU	3116	ACTTTGCG GGCTAGCTACAACGA AAGTGGCC	11865
2119 CGCAAAGU G CGGUUCGG 3119 CCGAACCG GGCTAGCTACAACGA ACTTTGCG 118 2122 AAAGUGCG G UUCGGGC 3120 GCCCCGAA GGCTAGCTACAACGA CGCACTTT 118 2129 GGUUCGGG G CCUUGGUU 3121 AACCAAGG GGCTAGCTACAACGA CCCGAACC 118 2135 GGGCCUUG G UUAACACC 3122 GGTTTTAA GGCTAGCTACAACGA CAAGGCCC 118 2139 CUUGGUUA A CACCUAGA 3123 TCTAGGTG GGCTAGCTACAACGA CAAGCACAGA 118 2141 UGGUUAAC A CCUAGAUG 3124 CATCTAGG GGCTAGCTACAACGA GTAACCAA 118 2147 ACACCUAG A UGCAUAGU 3125 ACTATGCA GGCTAGCTACAACGA CTAGGTGT 118 2149 ACCUAGAU G CAUAGUUG 3126 CAACTATG GGCTAGCTACAACGA ATCTAGGT 118 2151 CUAGAUGC A UAGUUGAC 3128 GTAGTCAA GGCTAGCTACAACGA ATCTAGCT 118 2154 GAUGCAUA G UUGACUAC 3128 GTAGTCAA GGCTAGCTACAACGA ATCTACACCA 118 2158 CAUAGUUG A CUCACCAU 3129 ATGGGTAG GGCTAGCTACAACGA AGTCAACT 118 2165 GACUACCC A UACAGGCU 3131	2112	CCACUUAC G CAAAGUGC	3117	GCACTTTG GGCTAGCTACAACGA GTAAGTGG	11866
2122	2117	UACGCAAA G UGCGGUUC	3118	GAACCGCA GGCTAGCTACAACGA TTTGCGTA	11867
2129 GGUUCGGG G CCUUGGUU 3121 AACCAAGG GGCTAGCTACAACGA CCCGAACC 118	2119	CGCAAAGU G CGGUUCGG	3119	CCGAACCG GGCTAGCTACAACGA ACTTTGCG	11868
2135 GGGCCUUG G UUAACACC 3122 GGTGTTAA GGCTAGCTACAACGA CAAGGCCC 118 2139 CUUGGUUA A CACCUAGA 3123 TCTAGGTG GGCTAGCTACAACGA TAACCAAG 118 2141 UGGUUAAC A CCUAGAUG 3124 CATCTAGG GGCTAGCTACAACGA GTTAACCA 118 2147 ACACCUAG A UGCAUAGU 3125 ACTATGG GGCTAGCTACAACGA ATCTAGGT 118 2149 ACCUAGAUG C CUAGAUGU 3126 CAACTATG GGCTAGCTACAACGA ATCTAGGT 118 2151 CUAGAUGC A UAGUUGAC 3127 GTCAACTA GGCTAGCTACAACGA ATCTAGT 118 2154 GAUGCAUA G UUGACUAC 3128 GTAGTCAA GGCTAGCTACAACGA ATCTAGT 118 2158 CAUAGUUG A CUACCCAU 3129 ATGGGTAG GGCTAGCTACAACGA CAACTATG 118 2161 AGUUGACU A CCCAUACA 3130 TGTATGGG GGCTAGCTACAACGA AGTCAACT 116 2165 GACUACCC A UACAGGCUU 3131 AGCCTGTA GGCTACCAACGA AGGGTAGT 118 2171 CCAUACAG C CUUGACA 3133 TGCCAAG GGCTAGCTACAACGA AGGGCCT 118 2177 AGGCUUG G CACUACCC 3134 GGGTAGTGACAACGA CAAAGCCT 118 <td>2122</td> <td>AAAGUGCG G UUCGGGGC</td> <td>3120</td> <td>GCCCCGAA GGCTAGCTACAACGA CGCACTTT</td> <td>11869</td>	2122	AAAGUGCG G UUCGGGGC	3120	GCCCCGAA GGCTAGCTACAACGA CGCACTTT	11869
2139 CUUGGUUA A CACCUAGA 3123 TCTAGGTG GGCTAGCTACAACGA TAACCAAG 118* 2141 UGGUUAAC A CCUAGAUG 3124 CATCTAGG GGCTAGCTACAACGA GTTAACCA 118* 2147 ACACCUAG A UGCAUAGU 3125 ACTATGCA GGCTAGCTACAACGA CTAGGTGT 118* 2149 ACCUAGAU G CAUAGUUG 3126 CAACTATG GGCTAGCTACAACGA ATCTAGGT 118* 2151 CUAGAUGC A UAGUUGAC 3127 GTCAACTA GGCTAGCTACAACGA CAACTATG 118* 2154 GAUGCAUG G UUGACCAU 3128 GTAGTCAA GGCTAGCTACAACGA CAACTATG 118* 2158 CAUAGUUG A CUACCCAU 3129 ATGGGTAG GGCTAGCTACAACGA CAACTATG 118* 2161 AGUUGACU A CCCAUACA 3130 TGTATGGG GGCTAGCTACAACGA CAACTATG 118* 2165 GACUACCC A UACAGGCU 3131 AGCCTGTA GGCTACAACGA AGTCAACTA 118* 2167 CUACCCAU A CAGGCUUU 3132 AAAGCCTG GGCTAGCTACAACGA ATGGGTAGT 118* 2171 CCAUACAG G CUUUGGCA 3133 TGCCAAAG GGCTAACAACGA CTGTATGG 118* 2172 AGGCUUUG G CACUACCC 3134 GGGTAGCTACAACGA CCAAAGCC <td>2129</td> <td>GGUUCGGG G CCUUGGUU</td> <td>3121</td> <td>AACCAAGG GGCTAGCTACAACGA CCCGAACC</td> <td>11870</td>	2129	GGUUCGGG G CCUUGGUU	3121	AACCAAGG GGCTAGCTACAACGA CCCGAACC	11870
2141 UGGUUAAC A CCUAGAUG 3124 CATCTAGG GGCTAGCTACAACGA GTTAACCA 118 2147 ACACCUAG A UGCAUAGU 3125 ACTATGCA GGCTAGCTACAACGA CTAGGTGT 118 2149 ACCUAGAU G CAUAGUUG 3126 CAACTATG GGCTAGCTACAACGA ATCTAGGT 118 2151 CUAGAUGC A UAGUUGAC 3127 GTCAACTA GGCTAGCTACAACGA GCATCTAG 118 2154 GAUGCAUA G UUGACCAU 3128 GTAGTCAA GGCTAGCTACAACGA CAACTATG 118 2158 CAUAGUUG A CUACCCAU 3129 ATGGTTAG GGCTAGCTACAACGA CAACTATG 118 2161 AGUUGACU A CCCAUACA 3130 TGTATGGG GGCTAGCTACAACGA AGTCAACT 118 2165 GACUACCC A UACAGGCU 3131 AGCCTGTA GGCTAGCTACAACGA AGTCAACT 118 2167 CUACCCAU A CAGGCUUU 3132 AAAGCCTG GGCTAGCTACAACGA ATGGGTAG 118 2171 CCAUACAG G CUUUGGCA 3133 TGCCAAAG GGCTAGCTACAACGA CTGTATGG 118 2177 AGGCUUUG G CACUACCC 3134 GGGTAGCTACAACGA CAAAGCCT 118 2182 UUGGCAU A CCCCUGCA 3135 AGGGGTAGCTACAACGA AGGCCAAGC 118 </td <td>2135</td> <td>GGGCCUUG G UUAACACC</td> <td>3122</td> <td>GGTGTTAA GGCTAGCTACAACGA CAAGGCCC</td> <td>11871</td>	2135	GGGCCUUG G UUAACACC	3122	GGTGTTAA GGCTAGCTACAACGA CAAGGCCC	11871
2147 ACACCUAG A UGCAUAGU 3125 ACTATGCA GGCTAGCTACAACGA CTAGGTGT 118 2149 ACCUAGAU G CAUAGUUG 3126 CAACTATG GGCTAGCTACAACGA ATCTAGGT 118 2151 CUAGAUGC A UAGUUGAC 3127 GTCAACTA GGCTAGCTACAACGA GCATCTAG 118 2154 GAUGCAUA G UUGACUAC 3128 GTAGTCAA GGCTAGCTACAACGA TATGCATC 118 2158 CAUAGUUG A CUACCCAU 3129 ATGGGTAG GGCTAGCTACAACGA CAACTATG 118 2161 AGUUGACU A CCCAUACA 3130 TGTATGGG GGCTAGCTACAACGA AGTCAACT 118 2165 GACUACCC A UACAGGCU 3131 AGCCTGTA GGCTACCAACGA AGTCAACT 118 2167 CUACCCAU A CAGGCUUU 3132 AAAGCCTG GGCTAGCTACAACGA ATGGGTAG 118 2171 CCAUACAG G CUUUGGCA 3133 TGCCAAAG GGCTAACTACAACGA CTGTATGG 118 2177 AGGCUUUG G CACUACCC 3134 GGGTAGT GCTACAACGA CAAGCCT 118 2179 GCUUUGGC A CUACCCCU 3135 AGGGTAG GGCTAGCTACAACGA AGTGCCAA 118 2182 UUGGCACU A CCCCUGCA 3136 TGCAGGG GGCTAGCTACAACGA AGTGCCAA 118	2139	CUUGGUUA A CACCUAGA	3123	TCTAGGTG GGCTAGCTACAACGA TAACCAAG	11872
2149 ACCUAGAU G CAUAGUUG 3126 CAACTATG GGCTAGCTACAACGA ATCTAGGT 118 2151 CUAGAUGC A UAGUUGAC 3127 GTCAACTA GGCTAGCTACAACGA GCATCTAG 118 2154 GAUGCAUA G UUGACUAC 3128 GTAGTCAA GGCTAGCTACAACGA TATGCATC 118 2158 CAUAGUUG A CUACCCAU 3129 ATGGGTAG GGCTAGCTACAACGA CAACTATG 118 2161 AGUUGACU A CCCAUACA 3130 TGTATGGG GGCTAGCTACAACGA AGTCAACT 118 2165 GACUACCC A UACAGGCU 3131 AGCCTGTA GGCTAGCTACAACGA AGTCGGTAG 118 2167 CUACCCAU A CAGGCUUU 3132 AAAGCCTG GGCTAGCTACAACGA ATGGGTAG 118 2171 CCAUACAG G CUUUGGCA 3133 TGCCAAAG GGCTAGCTACAACGA CTGTATG 118 2177 AGGCUUUG G CACUACCC 3134 GGGTAGT GGCTAGCTACAACGA CAAAGCCT 118 2179 GCUUUGGC A CUACCCCU 3135 AGGGGTAG GGCTAGCTACAACGA AGTGCCAA 118 2182 UUGGCACU A CCCCUGCA 3136 TGCAGGGG GGCTAGCTACAACGA AGTGCCAA 118 2188 CUACCCCU G CACUGUCA 3137 TGACAGTG GGCTAGCTACACACA AGGGGTAGC	2141	UGGUUAAC A CCUAGAUG	3124	CATCTAGG GGCTAGCTACAACGA GTTAACCA	11873
2149 ACCUAGAU G CAUAGUUG 3126 CAACTATG GGCTAGCTACAACGA ATCTAGGT 118 2151 CUAGAUGC A UAGUUGAC 3127 GTCAACTA GGCTAGCTACAACGA GCATCTAG 118 2154 GAUGCAUA G UUGACUAC 3128 GTAGTCAA GGCTAGCTACAACGA TATGCATC 118 2158 CAUAGUUG A CUACCCAU 3129 ATGGGTAG GGCTAGCTACAACGA CAACTATG 118 2161 AGUUGACU A CCCAUACA 3130 TGTATGGG GGCTAGCTACAACGA AGTCAACT 118 2165 GACUACCC A UACAGGCU 3131 AGCCTGTA GGCTACCAACGA GGGTAGT 118 2167 CUACCCAU A CAGGCUUU 3132 AAAGCCTG GGCTAGCTACAACGA ATGGGTAG 118 2171 CCAUACAG G CUUUGGCA 3133 TGCCAAAG GGCTAGCTACAACGA CTGTATGG 118 2177 AGGCUUUG G CACUACCC 3134 GGGTAGT GGCTAGCTACAACGA CAAAGCCT 118 2179 GCUUUGGC A CUACCCCU 3135 AGGGGTAG GGCTAGCTACAACGA AGTGCCAA 118 2182 UUGGCACU A CCCCUGCA 3136 TGCAGGGG GGCTAGCTACAACGA AGTGCCAA 118 2183 CUACCCCU G CACUGUCA 3137 TGACAGTG GGCTAGCTACAA	2147	ACACCUAG A UGCAUAGU	3125	ACTATGCA GGCTAGCTACAACGA CTAGGTGT	11874
2151 CUAGAUGC A UAGUUGAC 3127 GTCAACTA GGCTAGCTACAACGA GCATCTAG 118 2154 GAUGCAUA G UUGACUAC 3128 GTAGTCAA GGCTAGCTACAACGA TATGCATC 118 2158 CAUAGUUG A CUACCCAU 3129 ATGGGTAG GGCTAGCTACAACGA CAACTATG 118 2161 AGUUGACU A CCCAUACA 3130 TGTATGGG GGCTAGCTACAACGA AGTCAACT 118 2165 GACUACCC A UACAGGCU 3131 AGCCTGTA GGCTACCAACGA GGGTAGTC 118 2167 CUACCCAU A CAGGCUUU 3132 AAAGCCTG GGCTAGCTACAACGA ATGGGTAG 118 2171 CCAUACAG G CUUUGGCA 3133 TGCCAAAG GGCTAGCTACAACGA CTGTATGG 118 2177 AGGCUUUG G CACUACCC 3134 GGGTAGT GGCTAGCTACAACGA CAAAGCCT 118 2179 GCUUUGGC A CUACCCCU 3135 AGGGGTAG GGCTAGCTACAACGA AGTGCCAA 118 2182 UUGGCACU A CCCCUGCA 3136 TGCAGGGG GGCTAGCTACAACGA AGTGCCAA 118 2188 CUACCCCU G CACUGUCA 3137 TGACAGTG GGCTAGCTACAACGA AGGGGTAG 118 2190 ACCCCUGC A CUGUCAAU 3138 ATTGACAG GGCTAGCTACA	2149	ACCUAGAU G CAUAGUUG	3126	CAACTATG GGCTAGCTACAACGA ATCTAGGT	11875
2154 GAUGCAUA G UUGACUAC 3128 GTAGTCAA GGCTAGCTACAACGA TATGCATC 118' 2158 CAUAGUUG A CUACCCAU 3129 ATGGGTAG GGCTAGCTACAACGA CAACTATG 118' 2161 AGUUGACU A CCCAUACA 3130 TGTATGGG GGCTAGCTACAACGA AGTCAACT 118' 2165 GACUACCC A UACAGGCU 3131 AGCCTGTA GGCTAGCTACAACGA AGTCAACT 118' 2167 CUACCCAU A CAGGCUUU 3132 AAAGCCTG GGCTAGCTACAACGA ATGGGTAG 118' 2171 CCAUACAG G CUUUGGCA 3133 TGCCAAAG GGCTAGCTACAACGA ATGGGTAG 118' 2177 AGGCUUUG G CACUACCC 3134 GGGTAGTG GGCTAGCTACAACGA CTGTATGG 118' 2179 GCUUUGGC A CUACCCCU 3135 AGGGGTAG GGCTAGCTACAACGA CAAAGCCT 118' 2182 UUGGCACU A CCCCUGCA 3136 TGCAGGGG GGCTAGCTACAACGA AGTGCCAA 118' 2188 CUACCCCU G CACUGUCA 3137 TGACAGTG GGCTAGCTACAACGA AGTGCCAA 118' 2190 ACCCCUGC A CUGUCAAU 3138 ATTGACAG GGCTAGCTACAACGA AGGGGTAG 2193 CCUGCACU G UCAAUUUU 3139 AAAATTGA GGCTAGCTACAACGA AGTGCCAG 118' 2197 CACUGUCA A UUUUUCCA 3140 TGGAAAAA GGCTAGCTACAACGA AGTGCCAG 118' 2197 CACUGUCA UCAAUUUU 3139 AAAATTGA GGCTAGCTACAACGA AGTGCAGG 118' 2197 CACUGUCA A UUUUUCCA 3140 TGGAAAAA GGCTAGCTACAACGA AGTGCAGG 118' 2205 AUUUUUCC A UCUUUAAG 3141 CTTAAAGA GGCTAGCTACAACGA GGAAAAAT 118' 2214 UCUUUAAG G UUAGGAUG 3142 CATCCTAA GGCTAGCTACAACGA CCTAAACCT 118' 2220 AGGUUAGG A UGUAUGUG 3143 CACATACA GGCTAGCTACAACGA ACTCTAAC 118' 2222 GUUAGGAU G UAUGGGGG 3144 CCCCCACATA GGCTAGCTACAACGA ACTCCTAA 118' 2224 UAGGAUGU A UGUGGGGG 3144 CCCCCACATA GGCTAGCTACAACGA ACTCCTAA 118'	2151	CUAGAUGC A UAGUUGAC	3127		11876
2158 CAUAGUUG A CUACCCAU 3129 ATGGGTAG GGCTAGCTACAACGA CAACTATG 118' 2161 AGUUGACU A CCCAUACA 3130 TGTATGGG GGCTAGCTACAACGA AGTCAACT 118' 2165 GACUACCC A UACAGGCU 3131 AGCCTGTA GGCTAGCTACAACGA GGGTAGTC 118' 2167 CUACCCAU A CAGGCUUU 3132 AAAGCCTG GGCTAGCTACAACGA ATGGGTAG 118' 2171 CCAUACAG G CUUUGGCA 3133 TGCCAAAG GGCTAGCTACAACGA ATGGGTAG 118' 2177 AGGCUUUG G CACUACCC 3134 GGGTAGT GGCTAGCTACAACGA CAAAGCCT 118' 2179 GCUUUGGC A CUACCCCU 3135 AGGGGTAG GGCTAGCTACAACGA CAAAGCCT 118' 2182 UUGGCACU A CCCCUGCA 3136 TGCAGGGG GGCTAGCTACAACGA AGTGCCAA 118' 2188 CUACCCCU G CACUGUCA 3137 TGACAGTG GGCTAGCTACAACGA AGTGCCAA 118' 2190 ACCCCUGC A CUGUCAAU 3138 ATTGACAG GGCTAGCTACAACGA AGGGGTAG 118' 2193 CCUGCACU G UCAAUUUU 3139 AAAATTGA GGCTAGCTACAACGA AGTGCAGG 118' 2197 CACUGUCA A UUUUUCCA 3140 TGGAAAAA GGCTAGCTACAACGA AGTGCAGG 118' 2205 AUUUUUCC A UCUUUAAG 3141 CTTAAAGA GGCTAGCTACAACGA GGAAAAT 118' 2214 UCUUUAAG G UUAGGAUG 3142 CATCCTAA GGCTAGCTACAACGA CTTAAAGA 118' 2220 AGGUUAGG A UGUAUGUG 3143 CACATACA GGCTAGCTACAACGA CCTAACCT 118' 2222 GUUAGGAU A UGUGGGG 3144 CCCCCACA GGCTAGCTACAACGA ACTCCTAA C18' 2224 UAGGAUGU A UGUGGGG 3144 CCCCCCACA GGCTAGCTACAACGA ACATCCTA 118'	2154	GAUGCAUA G UUGACUAC	3128		11877
2161 AGUUGACU A CCCAUACA 3130 TGTATGGG GGCTAGCTACAACGA AGTCAACT 118° 2165 GACUACCC A UACAGGCU 3131 AGCCTGTA GGCTAGCTACAACGA GGGTAGTC 118° 2167 CUACCCAU A CAGGCUUU 3132 AAAGCCTG GGCTAGCTACAACGA ATGGGTAG 118° 2171 CCAUACAG G CUUUGGCA 3133 TGCCAAAG GGCTAGCTACAACGA CTGTATGG 118° 2177 AGGCUUUG G CACUACCC 3134 GGGTAGTG GGCTAGCTACAACGA CAAAGCCT 118° 2179 GCUUUGGC A CUACCCCU 3135 AGGGGTAG GGCTAGCTACAACGA CCAAAGCC 118° 2182 UUGGCACU A CCCCUGCA 3136 TGCAGGGG GGCTAGCTACAACGA AGTGCCAA 118° 2188 CUACCCCU G CACUGUCA 3137 TGACAGTG GGCTAGCTACAACGA AGGGGTAG 118° 2190 ACCCCUGC A CUGUCAAU 3138 ATTGACAG GGCTAGCTACAACGA GCAGGGGT 118° 2193 CCUGCACU G UCAAUUUU 3139 AAAATTGA GGCTAGCTACAACGA AGTGCAGG 118° 2197 CACUGUCA A UUUUUCCA 3140 TGGAAAAA GGCTAGCTACAACGA AGTGCAGG 118° 2205 AUUUUUCC A UCUUUAAG 3141 CTTAAAGA GGCTAGCTACAACGA GGAAAAAT 118° 2214 UCUUUAAG G UUAGGAUG 3142 CATCCTAA GGCTAGCTACAACGA CTTAAAGA 118° 2220 AGGUUAGG A UGUAUGUG 3143 CACATACA GGCTAGCTACAACGA CCTAACCT 118° 2222 GUUAGGAU G UAUGUGG 3144 CCCACATA GGCTAGCTACAACGA ACTCCTA 118° 2224 UAGGAUGU A UGUGGGGG 3144 CCCACATA GGCTAGCTACAACGA ACTCCTAC 118° 2224 UAGGAUGU A UGUGGGGG 3144 CCCCACATA GGCTAGCTACAACGA ACATCCTA 118° 2224 UAGGAUGU A UGUGGGGG 3145 CCCCCACA GGCTAGCTACAACGA ACATCCTA 118°					11878
2165 GACUACCC A UACAGGCU 3131 AGCCTGTA GGCTAGCTACAACGA GGGTAGTC 1180 2167 CUACCCAU A CAGGCUUU 3132 AAAGCCTG GGCTAGCTACAACGA ATGGGTAG 1180 2171 CCAUACAG G CUUUGGCA 3133 TGCCAAAG GGCTAGCTACAACGA CTGTATGG 1180 2177 AGGCUUUG G CACUACCC 3134 GGGTAGT GGCTAGCTACAACGA CAAAGCCT 1180 2179 GCUUUGGC A CUACCCCU 3135 AGGGGTAG GGCTAGCTACAACGA GCCAAAGC 1180 2182 UUGGCACU A CCCCUGCA 3136 TGCAGGGG GGCTAGCTACAACGA AGTGCCAA 1180 2188 CUACCCCU G CACUGUCA 3137 TGACAGTG GGCTAGCTACAACGA AGGGGTAG 1180 2190 ACCCCUGC A CUGUCAAU 3138 ATTGACAG GGCTAGCTACAACGA AGGGGTAG 1180 2193 CCUGCACU G UCAAUUUU 3139 AAAATTGA GGCTAGCTACAACGA AGTGCAGG 1180 2197 CACUGUCA A UUUUUCCA 3140 TGGAAAAA GGCTAGCTACAACGA AGTGCAGG 1180 2205 AUUUUUCC A UCUUUAAG 3141 CTTAAAGA GGCTAGCTACAACGA GGAAAAAT 1180 2214 UCUUUAAG G UUAGGAUG 3142 CATCCTAA GGCTAGCTACAACGA CTTAAAGA 1180 2220 AGGUUAGG A UGUAUGUG 3144 CACATACA GGCTAGCTACAACGA CTTAAACA 1180 2222 GUUAGGAU G UAUGUGGG 3144 CCCACATA GGCTAGCTACAACGA ACCTCAACCT 1180 2222 GUUAGGAU A UGUGGGGG 3144 CCCACATA GGCTAGCTACAACGA ACCTCAACCT 1180 2224 UAGGAUGU A UGUGGGGG 3145 CCCCCACA GGCTAGCTACAACGA ACATCCTAA 1180	-				
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2179 GCUUUGGC A CUACCCCU 3135 AGGGGTAG GGCTAGCTACAACGA GCCAAAGC 1180 2182 UUGGCACU A CCCCUGCA 3136 TGCAGGGG GGCTAGCTACAACGA AGTGCCAA 1180 2188 CUACCCCU G CACUGUCA 3137 TGACAGTG GGCTAGCTACAACGA AGGGGTAG 1180 2190 ACCCCUGC A CUGUCAAU 3138 ATTGACAG GGCTAGCTACAACGA GCAGGGGT 1180 2193 CCUGCACU G UCAAUUUU 3139 AAAATTGA GGCTAGCTACAACGA AGTGCAGG 1180 2197 CACUGUCA A UUUUUCCA 3140 TGGAAAAA GGCTAGCTACAACGA TGACAGTG 1180 2205 AUUUUUCC A UCUUUAAG 3141 CTTAAAGA GGCTAGCTACAACGA GGAAAAAT 1180 2214 UCUUUAAG G UUAGGAUG 3142 CATCCTAA GGCTAGCTACAACGA CTTAAAGA 1180 2220 AGGUUAGG A UGUAUGUG 3143 CACATACA GGCTAGCTACAACGA CCTAACCT 1180 2222 GUUAGGAU G UAUGUGGG 3144 CCCACATA GGCTAGCTACAACGA ATCCTAAC 1180 2224 UAGGAUGU A UGUGGGGG 3145 CCCCCACA GGCTAGCTACAACGA ACATCCTA 1180					11882
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2190 ACCCCUGC A CUGUCAAU 3138 ATTGACAG GGCTAGCTACAACGA GCAGGGGT 2193 CCUGCACU G UCAAUUUU 3139 AAAATTGA GGCTAGCTACAACGA AGTGCAGG 2197 CACUGUCA A UUUUUCCA 3140 TGGAAAAA GGCTAGCTACAACGA TGACAGTG 2205 AUUUUUCC A UCUUUAAG 3141 CTTAAAGA GGCTAGCTACAACGA GGAAAAAT 2214 UCUUUAAG G UUAGGAUG 3142 CATCCTAA GGCTAGCTACAACGA CTTAAAGA 2220 AGGUUAGG A UGUAUGUG 3143 CACATACA GGCTAGCTACAACGA CCTAACCT 1189 2222 GUUAGGAU G UAUGUGGG 3144 CCCACATA GGCTAGCTACAACGA ATCCTAAC 1189 2224 UAGGAUGU A UGUGGGGG 3145 CCCCCCACA GGCTAGCTACAACGA ACATCCTA					11885
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2205 AUUUUUCC A UCUUUAAG 3141 CTTAAAGA GGCTAGCTACAACGA GGAAAAAT 1189 2214 UCUUUAAG G UUAGGAUG 3142 CATCCTAA GGCTAGCTACAACGA CTTAAAGA 1189 2220 AGGUUAGG A UGUAUGUG 3143 CACATACA GGCTAGCTACAACGA CCTAACCT 1189 2222 GUUAGGAU G UAUGUGGG 3144 CCCACATA GGCTAGCTACAACGA ATCCTAAC 1189 2224 UAGGAUGU A UGUGGGGG 3145 CCCCCACA GGCTAGCTACAACGA ACATCCTA 1189					11888
2214 UCUUUAAG G UUAGGAUG 3142 CATCCTAA GGCTAGCTACAACGA CTTAAAGA 1189 2220 AGGUUAGG A UGUAUGUG 3143 CACATACA GGCTAGCTACAACGA CCTAACCT 1189 2222 GUUAGGAU G UAUGUGGG 3144 CCCACATA GGCTAGCTACAACGA ATCCTAAC 1189 2224 UAGGAUGU A UGUGGGGG 3145 CCCCCACA GGCTAGCTACAACGA ACATCCTA 1189	-			TGGAAAAA GGCTAGCTACAACGA TGACAGTG	11889
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2222 GUUAGGAU G UAUGUGGG 3144 CCCACATA GGCTAGCTACAACGA ATCCTAAC 1189 2224 UAGGAUGU A UGUGGGGG 3145 CCCCCACA GGCTAGCTACAACGA ACATCCTA 1189	2214	UCUUUAAG G UUAGGAUG	3142	CATCCTAA GGCTAGCTACAACGA CTTAAAGA	11891
2224 UAGGAUGU A UGUGGGGG 3145 CCCCCACA GGCTAGCTACAACGA ACATCCTA 1189	2220	AGGUUAGG A UGUAUGUG	3143	CACATACA GGCTAGCTACAACGA CCTAACCT	11892
	2222	GUUAGGAU G UAUGUGGG	3144	CCCACATA GGCTAGCTACAACGA ATCCTAAC	11893
	2224	UAGGAUGU A UGUGGGGG	3145	CCCCCACA GGCTAGCTACAACGA ACATCCTA	11894
1110 CONSTRUCT 1110 GCCCCCA GGCTAGCTACAACGA ATACATCC 118	2226	GGAUGUAU G UGGGGGGC	3146	GCCCCCCA GGCTAGCTACAACGA ATACATCC	11895
	2233	UGUGGGGG G CGUGGAGC	3147		11896

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2235	UGGGGGC G UGGAGCAC	3148	GTGCTCCA GGCTAGCTACAACGA GCCCCCCA	11897
2240	GGCGUGGA G CACAGGCU	3149	AGCCTGTG GGCTAGCTACAACGA TCCACGCC	11898
2242	CGUGGAGC A CAGGCUCA	3150	TGAGCCTG GGCTAGCTACAACGA GCTCCACG	11899
2246	GAGCACAG G CUCACCGC	3151	GCGGTGAG GGCTAGCTACAACGA CTGTGCTC	11900
2250	ACAGGCUC A CCGCCGCA	3152	TGCGGCGG GGCTAGCTACAACGA GAGCCTGT	11901
2253	GGCUCACC G CCGCAUGC	3153	GCATGCGG GGCTAGCTACAACGA GGTGAGCC	11902
2256	UCACCGCC G CAUGCAAU	3154	ATTGCATG GGCTAGCTACAACGA GGCGGTGA	11903
2258	ACCGCCGC A UGCAAUUG	3155	CAATTGCA GGCTAGCTACAACGA GCGGCGGT	11904
2260	CGCCGCAU G CAAUUGGA	3156	TCCAATTG GGCTAGCTACAACGA ATGCGGCG	11905
2263	CGCAUGCA A UUGGACUC	3157	GAGTCCAA GGCTAGCTACAACGA TGCATGCG	11906
2268	GCAAUUGG A CUCGAGGA	3158	TCCTCGAG GGCTAGCTACAACGA CCAATTGC	11907
2279	CGAGGAGA G CGUUGUGA	3159	TCACAACG GGCTAGCTACAACGA TCTCCTCG	11908
2281	AGGAGAGC G UUGUGAUU	3160	AATCACAA GGCTAGCTACAACGA GCTCTCCT	11909
2284	AGAGCGUU G UGAUUUGG	3161	CCAAATCA GGCTAGCTACAACGA AACGCTCT	11910
2287	GCGUUGUG A UUUGGAGG	3162	CCTCCAAA GGCTAGCTACAACGA CACAACGC	11911
2296	UUUGGAGG A CAGGGACA	3163	TGTCCCTG GGCTAGCTACAACGA CCTCCAAA	11912
2302	GGACAGGG A CAGAUCAG	3164	CTGATCTG GGCTAGCTACAACGA CCCTGTCC	11913
2302	AGGGACAG A UCAGAGCU	3165	AGCTCTGA GGCTAGCTACAACGA CCGTGCCT	11914
2312	AGAUCAGA G CUCAGCCC	3166		
2317	AGAGCUCA G CCCGCUGC	3167	GGGCTGAG GGCTAGCTACAACGA TCTGATCT GCAGCGGG GGCTAGCTACAACGA TGAGCTCT	11915
2321	CUCAGCCC G CUGCUGUU			
2321		3168	AACAGCAG GGCTAGCTACAACGA GGGCTGAG	11917
2324	AGCCCGCU G CUGUUGUC CCGCUGCU G UUGUCCAC	3169	GACAACAG GGCTAGCTACAACGA AGCGGGCT	11918
		3170	GTGGACAA GGCTAGCTACAACGA AGCAGCGG	11919
2330	CUGCUGUU G UCCACUAC	3171	GTAGTGGA GGCTAGCTACAACGA AACAGCAG	11920
2334	UGUUGUCC A CUACAGAG	3172	CTCTGTAG GGCTAGCTACAACGA GGACAACA	11921
2337	UGUCCACU A CAGAGUGG	3173	CCACTCTG GGCTAGCTACAACGA AGTGGACA	11922
2342	ACUACAGA G UGGCAAAU	3174	ATTTGCCA GGCTAGCTACAACGA TCTGTAGT	11923
2345	ACAGAGUG G CAAAUACU	3175	AGTATTTG GGCTAGCTACAACGA CACTCTGT	11924
2349	AGUGGCAA A UACUGCCC	3176	GGGCAGTA GGCTAGCTACAACGA TTGCCACT	11925
2351	UGGCAAAU A CUGCCCUG	3177	CAGGGCAG GGCTAGCTACAACGA ATTTGCCA	11926
2354	CAAAUACU G CCCUGCUC	3178	GAGCAGGG GGCTAGCTACAACGA AGTATTTG	11927
2359	ACUGCCCU G CUCCUUCA	3179	TGAAGGAG GGCTAGCTACAACGA AGGGCAGT	11928
2367	GCUCCUUC A CCACCCUA	3180	TAGGGTGG GGCTAGCTACAACGA GAAGGAGC	11929
2370	CCUUCACC A CCCUACCG	3181	CGGTAGGG GGCTAGCTACAACGA GGTGAAGG	11930
2375	ACCACCCU A CCGGCUCU	3182	AGAGCCGG GGCTAGCTACAACGA AGGGTGGT	11931
2379	CCCUACCG G CUCUGUCC	3183	GGACAGAG GGCTAGCTACAACGA CGGTAGGG	11932
2384	CCGGCUCU G UCCACUGG	3184	CCAGTGGA GGCTAGCTACAACGA AGAGCCGG	11933
2388	CUCUGUCC A CUGGUUUG	3185	CAAACCAG GGCTAGCTACAACGA GGACAGAG	11934
2392	GUCCACUG G UUUGAUCC	3186	GGATCAAA GGCTAGCTACAACGA CAGTGGAC	11935
2397	CUGGUUUG A UCCAUCUC	3187	GAGATGGA GGCTAGCTACAACGA CAAACCAG	11936
2401	UUUGAUCC A UCUCCACC	3188	GGTGGAGA GGCTAGCTACAACGA GGATCAAA	11937
2407	CCAUCUCC A CCAGAACA	3189	TGTTCTGG GGCTAGCTACAACGA GGAGATGG	11938
2413	CCACCAGA A CAUCGUGG	3190	CCACGATG GGCTAGCTACAACGA TCTGGTGG	11939
2415	ACCAGAAC A UCGUGGAC	3191	GTCCACGA GGCTAGCTACAACGA GTTCTGGT	11940
2418	AGAACAUC G UGGACGUG	3192	CACGTCCA GGCTAGCTACAACGA GATGTTCT	11941
2422	CAUCGUGG A CGUGCAAU	3193	ATTGCACG GGCTAGCTACAACGA CCACGATG	11942
2424	UCGUGGAC G UGCAAUAC	3194	GTATTGCA GGCTAGCTACAACGA GTCCACGA	11943
2426	GUGGACGU G CAAUACCU	3195	AGGTATTG GGCTAGCTACAACGA ACGTCCAC	11944
2429	GACGUGCA A UACCUGUA	3196	TACAGGTA GGCTAGCTACAACGA TGCACGTC	11945
2431	CGUGCAAU A CCUGUACG	3197	CGTACAGG GGCTAGCTACAACGA ATTGCACG	11946
2435	CAAUACCU G UACGGUGU	3198	ACACCGTA GGCTAGCTACAACGA AGGTATTG	11947
2437	AUACCUGU A CGGUGUAG	3199	CTACACCG GGCTAGCTACAACGA ACAGGTAT	11948
2440	CCUGUACG G UGUAGGGU	3200	ACCCTACA GGCTAGCTACAACGA CGTACAGG	11949
2442	UGUACGGU G UAGGGUCA	3201	TGACCCTA GGCTAGCTACAACGA ACCGTACA	11950
2447	GGUGUAGG G UCAGCGGU	3202	ACCGCTGA GGCTAGCTACAACGA CCTACACC	11951
2451	UAGGGUCA G CGGUUGUC	3203	GACAACCG GGCTAGCTACAACGA TGACCCTA	11952
		3203	TOOL TOURS TOUR TOUR TOUR	

745	CONTON OCC. C. INTERIOR	200:	CONCINCIA COCCURACIONA CON CONTRACA COCCURA CO	12050
2454	GGUCAGCG G UUGUCUCC	3204	GGAGACAA GGCTAGCTACAACGA CGCTGACC	11953
2457	CAGCGGUU G UCUCCUUC	3205	GAAGGAGA GGCTAGCTACAACGA AACCGCTG	11954
2466	UCUCCUUC G CAAUCAAA	3206	TTTGATTG GGCTAGCTACAACGA GAAGGAGA	11955
2469	CCUUCGCA A UCAAAUGG	3207	CCATTTGA GGCTAGCTACAACGA TGCGAAGG	11956
2474	GCAAUCAA A UGGGAGUA	3208	TACTCCCA GGCTAGCTACAACGA TTGATTGC	11957
2480	AAAUGGGA G UAUGUCCU	3209	AGGACATA GGCTAGCTACAACGA TCCCATTT	11958
2482	AUGGGAGU A UGUCCUGU	3210	ACAGGACA GGCTAGCTACAACGA ACTCCCAT	11959
2484	GGGAGUAU G UCCUGUUG	3211	CAACAGGA GGCTAGCTACAACGA ATACTCCC	11960
2489	UAUGUCCU G UUGCUUUU	3212	AAAAGCAA GGCTAGCTACAACGA AGGACATA	11961
2492	GUCCUGUU G CUUUUCCU	3213	AGGAAAAG GGCTAGCTACAACGA AACAGGAC	11962
2508	UUCUCCUG G CAGACGCG	3214	CGCGTCTG GGCTAGCTACAACGA CAGGAGAA	11963
2512	CCUGGCAG A CGCGCGCG	3215	CGCGCGCG GGCTAGCTACAACGA CTGCCAGG	11964
2514	UGGCAGAC G CGCGCGUC	3216	GACGCGCG GGCTAGCTACAACGA GTCTGCCA	11965
2516	GCAGACGC G CGCGUCUG	3217	CAGACGCG GGCTAGCTACAACGA GCGTCTGC	11966
2518	AGACGCGC G CGUCUGUG	3218	CACAGACG GGCTAGCTACAACGA GCGCGTCT	11967
2520	ACGCGCGC G UCUGUGCC	3219	GGCACAGA GGCTAGCTACAACGA GCGCGCGT	11968
2524	GCGCGUCU G UGCCUGUU	3220	AACAGGCA GGCTAGCTACAACGA AGACGCGC	11969
2526	GCGUCUGU G CCUGUUUG	3221	CAAACAGG GGCTAGCTACAACGA ACAGACGC	11970
2530	CUGUGCCU G UUUGUGGA	3222	TCCACAAA GGCTAGCTACAACGA AGGCACAG	11971
2534	GCCUGUUU G UGGAUGAU	3223	ATCATCCA GGCTAGCTACAACGA AAACAGGC	11972
2538	GUUUGUGG A UGAUGCUG	3224	CAGCATCA GGCTAGCTACAACGA CCACAAAC	11973
2541	UGUGGAUG A UGCUGUUG	3225	CAACAGCA GGCTAGCTACAACGA CATCCACA	11974
2543	UGGAUGAU G CUGUUGGU	3226	ACCAACAG GGCTAGCTACAACGA ATCATCCA	11975
2546	AUGAUGCU G UUGGUAGC	3227	GCTACCAA GGCTAGCTACAACGA AGCATCAT	11976
2550	UGCUGUUG G UAGCCCAG	3228	CTGGGCTA GGCTAGCTAGAACGA CAACAGCA	11977
2553	UGUUGGUA G CCCAGGCC	3229	GGCCTGGG GGCTAGCTAGAACGA TACCAACA	11978
2559	UAGCCCAG G CCGAGGCU	3230	AGCCTCGG GGCTAGCTAGAACGA CTGGGCTA	11979
2565	AGGCCGAG G CUGCCCUA	3231	TAGGGCAG GGCTAGCTACAACGA CTCGGCCT	11980
2568	CCGAGGCU G CCCUAGAG	3232	CTCTAGGG GGCTAGCTACAACGA AGCCTCGG	11981
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2583	AGAACCUG G UGGUCCUC	3234	GAGGACCA GGCTAGCTAGAACGA CAGGTTCT	11983
2586	ACCUGGUG G UCCUCAAU	3235	ATTGAGGA GGCTAGCTAGAACGA CACCAGGT	11984
2593	GGUCCUCA A UGCAGCAU	3236	ATGCTGCA GGCTAGCTAGAACGA TGAGGACC	11985
2595	UCCUCAAU G CAGCAUCC UCAAUGCA G CAUCCUUG	3237	GGATGCTG GGCTAGCTACAACGA ATTGAGGA	11986
2598	AAUGCAGC A UCCUUGGC	3238	CAAGGATG GGCTAGCTACAACGA TGCATTGA	11987
2600		3239	GCCAAGGA GGCTAGCTACAACGA GCTGCATT	11988
<u> </u>	CAUCCUUG G CCGGAGUG	3240	CACTCCGG GGCTAGCTACAACGA CAAGGATG	11989
2613	UGGCCGGA G UGCAUGGC	3241	GCCATGCA GGCTAGCTAGCAACGA TCCGGCCA	11990
2615	GCCGAGUGC A UGGCAUCC	3242	ATGCCATG GGCTAGCTAGAACGA ACTCCGGC	11991
2617	CGGAGUGC A UGGCAUCC	3243	GGATGCCA GGCTAGCTACAACGA GCACTCCG	11992
2620 2622	AGUGCAUG G CAUCCUCU	3244	AGAGGATG GGCTAGCTACAACGA CATGCACT	11993
2622	UGCAUGGC A UCCUCUCC CCUUCCUC G UGUUCUUC	3245	GGAGAGGA GGCTAGCTACAACGA GCCATGCA	11994
2637	UUCCUCGU G UGUUCUUC	3246	GAAGAACA GGCTAGCTACAACGA GAGGAAGG	11995
2647	GUUCUUCU G UGCUGCCU	3247 3248	CAGAAGAA GGCTAGCTACAACGA ACGAGGAA	11996
2649	UCUUCUGU G CUGCCUGG	3248	AGGCAGCA GGCTAGCTACAACGA AGAAGAAC CCAGGCAG GGCTAGCTACAACGA ACAGAAGA	11997
2652	UCUGUGCU G CCUGGUAC	3249	CCAGGCAG GGCTAGCTACAACGA ACAGAAGA GTACCAGG GGCTAGCTACAACGA AGCACAGA	11998
2652	GCUGCCUG G UACAUCAA	3250	TTGATGTA GGCTAGCTACAACGA AGCACAGA TTGATGTA GGCTAGCTACAACGA CAGGCAGC	11999
2659	UGCCUGGU A CAUCAAAG	3251	CTTTGATG GGCTAGCTACAACGA CAGGCAGC	12000
2661	CCUGGUAC A UCAAAGGC	3252	GCCTTGA GGCTAGCTACAACGA ACCAGGCA GCCTTTGA GGCTAGCTACAACGA GTACCAGG	12001
2668	CAUCAAAG G CAAGCUGG	3253		
2672	AAAGGCAA G CUGGUCCC	3254 3255	CCAGCTTG GGCTAGCTACAACGA CTTTGATG GGGACCAG GGCTAGCTACAACGA TTGCCTTT	12003
2676	GCAAGCUG G UCCCUGGG	3255	CCCAGGGA GGCTAGCTACAACGA TTGCCTTT CCCAGGGA GGCTAGCTACAACGA CAGCTTGC	
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2688	CUGGGGCG G CAUAUGCU	3257		12006
2690	GGGGCGGC A UAUGCUCU	3258 3259	AGCATATG GGCTAGCTACAACGA CGCCCCAG AGAGCATA GGCTAGCTACAACGA GCCGCCCC	12007
2020	COCCOCC A DAUGCOCO	3437	AUAGUSTA OGCIAGCIACAACGA GCCGCCCC	12008

2692	GGCGGCAU A UGCUCUCU	3260	AGAGAGCA GGCTAGCTACAACGA ATGCCGCC	12000
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2701	UCUCUACG G CGUAUGGC	3263	GCCATACG GGCTAGCTACAACGA CGTAGAGA	
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	UACGCCGU A UGGCCGCU	3265	AGCGGCCA GGCTAGCTACAACGA GCCGTAGA	12013
2708				12014
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2714		3267	AGGAGTAG GGCTAGCTACAACGA GGCCATAC	12016
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2723	CUACUCCU G CUCCUGCU	3269	AGCAGGAG GGCTAGCTACAACGA AGGAGTAG	12018
2729	CUGCUCCU G CUGGCGUU	3270	AACGCCAG GGCTAGCTACAACGA AGGAGCAG	12019
2733	UCCUGCUG G CGUUACCA	3271	TGGTAACG GGCTAGCTACAACGA CAGCAGGA	12020
2735	CUGCUGGC G UUACCACC	3272	GGTGGTAA GGCTAGCTACAACGA GCCAGCAG	12021
2738	CUGGCGUU A CCACCACG	3273	CGTGGTGG GGCTAGCTACAACGA AACGCCAG	12022
2741	GCGUUACC A CCACGGGC	3274	GCCCGTGG GGCTAGCTACAACGA GGTAACGC	12023
2744	UUACCACC A CGGGCGUA	3275	TACGCCCG GGCTAGCTACAACGA GGTGGTAA	12024
2748	CACCACGG G CGUACGCC	3276	GGCGTACG GGCTAGCTACAACGA CCGTGGTG	12025
2750	CCACGGGC G UACGCCAU	3277	ATGGCGTA GGCTAGCTACAACGA GCCCGTGG	12026
2752	ACGGGCGU A CGCCAUGG	3278	CCATGGCG GGCTAGCTACAACGA ACGCCCGT	12027
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2757	CGUACGCC A UGGACCGG	3280	CCGGTCCA GGCTAGCTACAACGA GGCGTACG	12029
2761	CGCCAUGG A CCGGGAGA	3281	TCTCCCGG GGCTAGCTACAACGA CCATGGCG	12030
2769	ACCGGGAG A UGGCCGCA	3282	TGCGGCCA GGCTAGCTACAACGA CTCCCGGT	12031
2772	GGGAGAUG G CCGCAUCG	3283	CGATGCGG GGCTAGCTACAACGA CATCTCCC	12032
2775	AGAUGGCC G CAUCGUGC	3284	GCACGATG GGCTAGCTACAACGA GGCCATCT	12033
2777	AUGGCCGC A UCGUGCGG	3285	CCGCACGA GGCTAGCTACAACGA GCGGCCAT	12034
2780	GCCGCAUC G UGCGGAGG	3286	CCTCCGCA GGCTAGCTACAACGA GATGCGGC	12035
2782	CGCAUCGU G CGGAGGCG	3287	CGCCTCCG GGCTAGCTACAACGA ACGATGCG	12036
2788	GUGCGGAG G CGUGGUUU	3288	AAACCACG GGCTAGCTACAACGA CTCCGCAC	12037
2790	GCGGAGGC G UGGUUUUU	3289	AAAAACCA GGCTAGCTACAACGA GCCTCCGC	12038
2793	GAGGCGUG G UUUUUGUA	3290	TACAAAAA GGCTAGCTACAACGA CACGCCTC	12039
2799	UGGUUUUU G UAGGUCUA	3291	TAGACCTA GGCTAGCTACAACGA AAAAACCA	12040
2803	UUUUGUAG G UCUAGCAC	3292	GTGCTAGA GGCTAGCTACAACGA CTACAAAA	12041
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2828	UUGUCACC A UACUACAA	3298	TTGTAGTA GGCTAGCTACAACGA GGTGACAA	12047
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2833	ACCAUACU A CAAAGUGU	3300	ACACTTTG GGCTAGCTACAACGA AGTATGGT	12049
2838	ACUACAAA G UGUUCCUC	3301	GAGGAACA GGCTAGCTACAACGA TTTGTAGT	12050
2840	UACAAAGU G UUCCUCGC	3302	GCGAGGAA GGCTAGCTACAACGA ACTTTGTA	12051
2847	UGUUCCUC G CUAGGCUC	3303	GAGCCTAG GGCTAGCTACAACGA GAGGAACA	12052
2852	CUCGCUAG G CUCAUAUG	3304	CATATGAG GGCTAGCTACAACGA CTAGCGAG	12053
2856	CUAGGCUC A UAUGGUGG	3305	CCACCATA GGCTAGCTACAACGA GAGCCTAG	12054
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2870	UGGUUGCA A UACCUUAU	3310	ATAAGGTA GGCTAGCTACAACGA TGCAACCA	12059
2872	GUUGCAAU A CCUUAUCA	3311	TGATAAGG GGCTAGCTACAACGA ATTGCAAC	12060
2877	AAUACCUU A UCACCAGA	3312	TCTGGTGA GGCTAGCTACAACGA AAGGTATT	12061
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2886	UCACCAGA G CCGAGGCG	3314	CGCCTCGG GGCTAGCTACAACGA TCTGGTGA	12063
2892	GAGCCGAG G CGCAGUUG	3315	CAACTGCG GGCTAGCTACAACGA CTCGGCTC	12064
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0004	GGGAGGG G GAGITIGGA	2216	MOCANGEO OCCURACIONACIA CCON CCCTCCCC	12065
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2906	UUGCAAGU G UGGAUCCC	3320	GGGATCCA GGCTAGCTACAACGA ACTTGCAA	12069
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2946	GCGGUGCC A UCAUUCUC	3328	GAGAATGA GGCTAGCTACAACGA GGCACCGC	12077
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2958	UUCUCCUC A CGUGUGUG	3330	CACACACG GGCTAGCTACAACGA GAGGAGAA	12079
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2962	CCUCACGU G UGUGGUCC	3332	GGACCACA GGCTAGCTACAACGA ACGTGAGG	12081
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3014	CUCGCCAU A CUCGGCCC	3346	GGGCCGAG GGCTAGCTACAACGA ATGGCGAG	12095
3019	CAUACUCG G CCCGCUCA	3347	TGAGCGGG GGCTAGCTACAACGA CGAGTATG	12096
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3027	GCCCGCUC A UGGUGCUC	3349	GAGCACCA GGCTAGCTACAACGA GAGCGGGC	12098
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3032	CUCAUGGU G CUCCAGGC	3351	GCCTGGAG GGCTAGCTACAACGA ACCATGAG	12100
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3068	GACUUUGU G CGGGCUCA			12108
	UUGUGCGG G CUCAAGGG	3360	TGAGCCCG GGCTAGCTACAACGA ACAAAGTC	12109
3072		3361	CCCTTGAG GGCTAGCTACAACGA CCGCACAA	12110
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3096	GUGAAUGC A UUUUGGUG	3367	CACCAAAA GGCTAGCTACAACGA GCATTCAC	12116
3102	GCAUUUUG G UGCGGAAA	3368	TTTCCGCA GGCTAGCTACAACGA CAAAATGC	12117
3104	AUUUUGGU G CGGAAAGU	3369	ACTITCCG GGCTAGCTACAACGA ACCAAAAT	12118
3111	UGCGGAAA G UCGGUGGG	3370	CCCACCGA GGCTAGCTACAACGA TTTCCGCA	12119
3115	GAAAGUCG G UGGGGGGC	3371	GCCCCCA GGCTAGCTACAACGA CGACTTTC	12120
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3122	GGUGGGGG G CAAUAUGU	3372	ACATATTG GGCTAGCTACAACGA CCCCCACC	12121
3125	GGGGGCA A UAUGUCCA	3373	TGGACATA GGCTAGCTACAACGA TGCCCCCC	12122
3127	GGGGCAAU A UGUCCAAA	3374	TTTGGACA GGCTAGCTACAACGA ATTGCCCC	12123
3129	GGCAAUAU G UCCAAAUG	3375	CATTTGGA GGCTAGCTACAACGA ATATTGCC	12124
3135	AUGUCCAA A UGGCCUUC	3376	GAAGGCCA GGCTAGCTACAACGA TTGGACAT	12125
3138	UCCAAAUG G CCUUCAUG	3377	CATGAAGG GGCTAGCTACAACGA CATTTGGA	12126
3144	UGGCCUUC A UGAAGUUG	3378	CAACTTCA GGCTAGCTACAACGA GAAGGCCA	12127
3149	UUCAUGAA G UUGGCCGA	3379	TCGGCCAA GGCTAGCTACAACGA TTCATGAA	12128
3153	UGAAGUUG G CCGAAUUG	3380	CAATTCGG GGCTAGCTACAACGA CAACTTCA	12129
3158	UUGGCCGA A UUGAAAGG	3381	CCTTTCAA GGCTAGCTACAACGA TCGGCCAA	12130
3166	AUUGAAAG G UACGUCCG	3382	CGGACGTA GGCTAGCTACAACGA CTTTCAAT	12131
3168	UGAAAGGU A CGUCCGUC	3383	GACGGACG GGCTAGCTACAACGA ACCTTTCA	12132
3170	AAAGGUAC G UCCGUCUA	3384	TAGACGGA GGCTAGCTACAACGA GTACCTTT	12133
3174	GUACGUCC G UCUAUGAC	3385	GTCATAGA GGCTAGCTACAACGA GGACGTAC	12134
3178	GUCCGUCU A UGACCACC	3386	GGTGGTCA GGCTAGCTACAACGA AGACGGAC	12135
3181	CGUCUAUG A CCACCUCA	3387	TGAGGTGG GGCTAGCTACAACGA CATAGACG	12136
3184	CUAUGACC A CCUCACUC	3388	GAGTGAGG GGCTAGCTACAACGA GGTCATAG	12137
3189	ACCACCUC A CUCCACUG	3389	CAGTGGAG GGCTAGCTACAACGA GAGGTGGT	12138
3194	CUCACUCC A CUGCAGGA	3390	TCCTGCAG GGCTAGCTACAACGA GGAGTGAG	12139
3197	ACUCCACU G CAGGACUG	3391	CAGTCCTG GGCTAGCTACAACGA AGTGGAGT	12140
3202	ACUGCAGG A CUGGGCCC	3392	GGGCCAG GGCTAGCTACAACGA CCTGCAGT	12141
3207	AGGACUGG G CCCACACA	3393	TGTGTGGG GGCTAGCTACAACGA CCAGTCCT	12141
3211	CUGGGCCC A CACAGGUC	3394	GACCTGTG GGCTAGCTACAACGA GCGCCCAG	
				12143
3213	GGGCCCAC A CAGGUCUA	3395	TAGACCTG GGCTAGCTACAACGA GTGGGCCC	12144
3217	CCACACAG G UCUACGAG	3396	CTCGTAGA GGCTAGCTACAACGA CTGTGTGG	12145
3221	ACAGGUCU A CGAGACCU	3397	AGGTCTCG GGCTAGCTACAACGA AGACCTGT	12146
3226	UCUACGAG A CCUGGCGG	3398	CCGCCAGG GGCTAGCTACAACGA CTCGTAGA	12147
3231	GAGACCUG G CGGUAGCG	3399	CGCTACCG GGCTAGCTACAACGA CAGGTCTC	12148
3234	ACCUGGCG G UAGCGGUC	3400	GACCGCTA GGCTAGCTACAACGA CGCCAGGT	12149
3237	UGGCGGUA G CGGUCGAG	3401	CTCGACCG GGCTAGCTACAACGA TACCGCCA	12150
3240	CGGUAGCG G UCGAGCCC	3402	GGGCTCGA GGCTAGCTACAACGA CGCTACCG	12151
3245	GCGGUCGA G CCCGUCGU	3403	ACGACGGG GGCTAGCTACAACGA TCGACCGC	12152
3249	UCGAGCCC G UCGUCUUC	3404	GAAGACGA GGCTAGCTACAACGA GGGCTCGA	12153
3252	AGCCCGUC G UCUUCUCC	3405	GGAGAAGA GGCTAGCTACAACGA GACGGGCT	12154
3262	CUUCUCCG A CAUGGAAA	3406	TTTCCATG GGCTAGCTACAACGA CGGAGAAG	12155
3264	UCUCCGAC A UGGAAAUC	3407	GATTTCCA GGCTAGCTACAACGA GTCGGAGA	12156
3270	ACAUGGAA A UCAAGAUC	3408	GATCTTGA GGCTAGCTACAACGA TTCCATGT	12157
3276	AAAUCAAG A UCAUCACC	3409	GGTGATGA GGCTAGCTACAACGA CTTGATTT	12158
3279	UCAAGAUC A UCACCUGG	3410	CCAGGTGA GGCTAGCTACAACGA GATCTTGA	12159
3282	AGAUCAUC A CCUGGGGG	3411	CCCCAGG GGCTAGCTACAACGA GATGATCT	12160
3295	GGGGGGAG A CACCGCGG	3412	CCGCGGTG GGCTAGCTACAACGA CTCCCCCC	12161
3297	GGGGAGAC A CCGCGGCG	3413	CGCCGCGG GGCTAGCTACAACGA GTCTCCCC	12162
3300	GAGACACC G CGGCGUGU	3414	ACACGCCG GGCTAGCTACAACGA GGTGTCTC	12163
3303	ACACCGCG G CGUGUGGG	3415	CCCACACG GGCTAGCTACAACGA CGCGGTGT	12164
3305	ACCGCGGC G UGUGGGGA	3416	TCCCCACA GGCTAGCTACAACGA GCCGCGGT	12165
3307	CGCGGCGU G UGGGGACA	3417	TGTCCCCA GGCTAGCTACAACGA ACGCCGCG	12166
3313	GUGUGGGG A CAUCAUUA	3418	TAATGATG GGCTAGCTACAACGA CCCCACAC	12167
3315	GUGGGGAC A UCAUUAUG	3419	CATAATGA GGCTAGCTACAACGA GTCCCCAC	12168
3318	GGGACAUC A UUAUGGGU	3420	ACCCATAA GGCTAGCTACAACGA GATGTCCC	12169
3321	ACAUCAUU A UGGGUCUA	3421	TAGACCCA GGCTAGCTACAACGA AATGATGT	12170
3325	CAUUAUGG G UCUACCUG	3422	CAGGTAGA GGCTAGCTACAACGA CCATAATG	12171
3329	AUGGGUCU A CCUGUCUC	3423	GAGACAGG GGCTAGCTACAACGA AGACCCAT	12172
3333	GUCUACCU G UCUCCGCC	3424	GGCGGAGA GGCTAGCTACAACGA AGGTAGAC	12173
3339	CUGUCUCC G CCCGAAGG	3425	CCTTCGGG GGCTAGCTACAACGA GGAGACAG	12174
3357	GGAGGGAG A UACUCCUA	3426	TAGGAGTA GGCTAGCTACAACGA CTCCCTCC	12175
3359	AGGGAGAU A CUCCUAGG	3427	CCTAGGAG GGCTAGCTACAACGA ATCTCCCT	12176

3368	CUCCUAGG A CCAGCCGA	3428	TCGGCTGG GGCTAGCTACAACGA CCTAGGAG	12177
3372	UAGGACCA G CCGACAGU	3429	ACTGTCGG GGCTAGCTACAACGA TGGTCCTA	12178
3376	ACCAGCCG A CAGUCUUG	3430	CAAGACTG GGCTAGCTACAACGA CGGCTGGT	12179
3379	AGCCGACA G UCUUGAGG	3431	CCTCAAGA GGCTAGCTACAACGA TGTCGGCT	12180
3389	CUUGAGGG G CAGGGGUG	3432	CACCCTG GGCTAGCTACAACGA CCCTCAAG	12181
3395	GGGCAGGG G UGGCGACU	3433	AGTCGCCA GGCTAGCTACAACGA CCCTGCCC	12182
	CAGGGGUG G CGACUCCU	3434	AGGAGTCG GGCTAGCTACAACGA CACCCCTG	12183
3398				
3401	GGGUGGCG A CUCCUCGC	3435	GCGAGGAG GGCTAGCTACAACGA CGCCACCC	12184
3408	GACUCCUC G CGCCCAUU		AATGGGCG GGCTAGCTACAACGA GAGGAGTC	12185
3410	CUCCUCGC G CCCAUUAC	3437	GTAATGGG GGCTAGCTACAACGA GCGAGGAG	12186
3414	UCGCGCCC A UUACGGCC	3438	GGCCGTAA GGCTAGCTACAACGA GGGCGCGA	12187
3417	CGCCCAUU A CGGCCUAC	3439	GTAGGCCG GGCTAGCTACAACGA AATGGGCG	12188
3420	CCAUUACG G CCUACUCC	3440	GGAGTAGG GGCTAGCTACAACGA CGTAATGG	12189
3424	UACGGCCU A CUCCCAAC	3441	GTTGGGAG GGCTACCTACAACGA AGGCCGTA	12190
3431	UACUCCCA A CAGACGCG	3442	CGCGTCTG GGCTAGCTACAACGA TGGGAGTA	12191
3435	CCCAACAG A CGCGGGGC	3443	GCCCCGCG GGCTAGCTACAACGA CTGTTGGG	12192
3437	CAACAGAC G CGGGGCCU	3444	AGGCCCCG GGCTAGCTACAACGA GTCTGTTG	12193
3442	GACGCGGG G CCUGUUUG	3445	CAAACAGG GGCTAGCTACAACGA CCCGCGTC	12194
3446	CGGGCCU G UUUGGCUG	3446	CAGCCAAA GGCTAGCTACAACGA AGGCCCCG	12195
3451	CCUGUUUG G CUGCAUUA	3447	TAATGCAG GGCTAGCTACAACGA CAAACAGG	12196
3454	GUUUGGCU G CAUUAUCA	3448	TGATAATG GGCTAGCTACAACGA AGCCAAAC	12197
3456	UUGGCUGC A UUAUCACC	3449	GGTGATAA GGCTAGCTACAACGA GCAGCCAA	12198
3459	GCUGCAUU A UCACCAGC	3450	GCTGGTGA GGCTAGCTACAACGA AATGCAGC	12199
3462	GCAUUAUC A CCAGCCUC	3451	GAGGCTGG GGCTAGCTACAACGA GATAATGC	12200
3466	UAUCACCA G CCUCACGG	3452	CCGTGAGG GGCTAGCTACAACGA TGGTGATA	12201
3471	CCAGCCUC A CGGGCCGG	3453	CCGGCCCG GGCTAGCTACAACGA GAGGCTGG	12202
3475	CCUCACGG G CCGGGACA	3454	TGTCCCGG GGCTAGCTACAACGA CCGTGAGG	12203
3481	GGGCCGGG A CAAGAACC	3455	GGTTCTTG GGCTAGCTACAACGA CCCGGCCC	12204
3487	GGACAAGA A CCAAGUCG	3456	CGACTTGG GGCTAGCTACAACGA TCTTGTCC	12205
3492	AGAACCAA G UCGAGGGG	3457	CCCCTCGA GGCTAGCTACAACGA TTGGTTCT	12206
3504	AGGGGGAA G UUCAAGUG	3458	CACTTGAA GGCTAGCTACAACGA TTCCCCCT	12207
3510	AAGUUCAA G UGGUUUCC	3459	GGAAACCA GGCTAGCTACAACGA TTGAACTT	12208
3513	UUCAAGUG G UUUCCACC	3460	GGTGGAAA GGCTAGCTACAACGA CACTTGAA	12209
3519	UGGUUUCC A CCGCGACG	3461	CGTCGCGG GGCTAGCTACAACGA GGAAACCA	12210
3522	UUUCCACC G CGACGCAG	3462	CTGCGTCG GGCTAGCTACAACGA GGTGGAAA	12211
3525	CCACCGCG A CGCAGUCU	3463	AGACTGCG GGCTAGCTACAACGA CGCGGTGG	12212
3527	ACCGCGAC G CAGUCUUU	3464	AAAGACTG GGCTAGCTACAACGA GTCGCGGT	12213
3530	GCGACGCA G UCUUUCCU	3465	AGGAAAGA GGCTAGCTACAACGA TGCGTCGC	12214
3540	CUUUCCUA G CGACCUGC	3466	GCAGGTCG GGCTAGCTACAACGA TAGGAAAG	12215
3543	UCCUAGCG A CCUGCGUC	3467	GACGCAGG GGCTAGCTACAACGA CGCTAGGA	12216
3547	AGCGACCU G CGUCAACG	3468	CGTTGACG GGCTAGCTACAACGA AGGTCGCT	12217
3549	CGACCUGC G UCAACGGC	3469	GCCGTTGA GGCTAGCTACAACGA GCAGGTCG	12218
3553	CUGCGUCA A CGGCGUGU	3470	ACACGCCG GGCTAGCTACAACGA TGACGCAG	12219
3556	CGUCAACG G CGUGUGCU	3471	AGCACACG GGCTAGCTACAACGA CGTTGACG	12220
3558	UCAACGGC G UGUGCUGG	3472	CCAGCACA GGCTAGCTACAACGA GCCGTTGA	12221
3560	AACGGCGU G UGCUGGAC	3473	GTCCAGCA GGCTAGCTACAACGA ACGCCGTT	12222
3562	CGGCGUGU G CUGGACUG	3474	CAGTCCAG GGCTAGCTACAACGA ACACGCCG	12223
3567	UGUGCUGG A CUGUCUAC	3475	GTAGACAG GGCTAGCTACAACGA CCAGCACA	12224
3570	GCUGGACU G UCUACCAC	3476	GTGGTAGA GGCTAGCTACAACGA AGTCCAGC	12225
3574	GACUGUCU A CCACGGCG	3477	CGCCGTGG GGCTAGCTACAACGA AGACAGTC	12226
3577	UGUCUACC A CGGCGCCG	3478	CGGCGCCG GGCTAGCTACAACGA GGTAGACA	12227
3580	CUACCACG G CGCCGGCU	3479	AGCCGGCG GGCTAGCTACAACGA CGTGGTAG	12228
3582	ACCACGGC G CCGGCUCA	3480	TGAGCCGG GGCTAGCTACAACGA GCCGTGGT	12229
3586	CGGCGCCG G CUCAAAGA	3481	TCTTTGAG GGCTAGCTACAACGA CGGCGCCG	12230
3594	GCUCAAAG A CCCUAGCC	3482	GGCTAGGG GGCTAGCTACAACGA CTTTGAGC	
3600	AGACCCUA G CCGGCCCA	3483	TGGGCCGG GGCTAGCTACAACGA TAGGGTCT	12231
7000	- IMPOCON O COOCCA	7 203	1000000 OCTACTACAACGA TAGGGTCT	12232

3613 COLARGOG G CCCARAGG 3484 CCTTTOSG GCTAGCTACAAGG GCCTAGG 12233 3618 AGGGUCCA A UCACCCAA 3485 TGGGTGG GCTAGCTACAAGGA CTCTTTGGG 12235 3621 GUCCARUC A UCACCCAA 3486 TGGGTGG GCTAGCTACAAGGA GCCCCCC 12235 3627 UCACCCAA A UGUACCCA 3487 CGTTGGG GCCTAGCTACAAGGA GTGACCCT 12235 3627 UCACCCAA A UGUACCCA 3488 GGTGTAC GCCTAGCACAGGA GTGAGCCT 12237 3629 ACCCANAU G UCACCCAA 3489 TGGGTGG GCTAGCTACAAGGA ATTGGGTA 12237 3631 CCCAAUGU A CACCAAUG 3499 TGGGTGG GGCTAGCTACAAGGA ATTGGGT 12239 3633 AAUGUAC A CCAAUGU 3499 TTACATTGG GCCTAGCTACAAGGA ATTGGGT 12239 3633 AAUGUAC A CCAAUGU 3491 TACATTGG GCCTAGCTACAAGGA ATCATTGGT 12240 3639 ACACCAA U UAACCCA 3491 TACATTGG GCCTAGCTACAAGGA ATCATTGGT 12240 3639 ACACCAA U UAACCCA 3491 TACATTGG GCCTAGCTACAAGGA ATCATTGGT 12242 3643 CAAUGUAC A CUAUGUC 3494 GCTCGTGG GCCTAGCTACAAGGA ATCATTGGT 12242 3643 ACAUGUAG C UAGACCA 3493 CTGGTCTA GCCTAGCTACAAGGA ATCATTGGT 12243 3643 ACAUGUAG A CUCGUGG 3495 CGACGAGG GCCTAGCTACAAGGA ATCATTGGT 12244 3649 ACACCAGA A CUCGUGG 3495 CGACGAGG GCCTAGCTACAAGGA ACGGTGT 12244 3649 ACACCAGA A CUCGUGG 3495 CGACGAGG GCCTAGCTACAAGGA ACGGCT 12246 3656 AGAGCCUG G GCGCCCC 3499 GCCGAGCC GGCTAGCTACAAGGA ACGGCCT 12246 3666 GAUGGCCG C CCCCCC 3499 GCGGGGCG GCCTAGCTACAAGGA ACGGCCT 12246 3666 GAUGGCCG C CCCCCC 3499 GCGGGGCG GCCTAGCTACAAGGA ACCGAGGA 12246 3666 GAUGGCCG C CCCCCC 3499 GCGGGGCG GCCTAGCTACAAGGA ACCGAGGA 12246 3666 GAUGGCCG C CCCCCC 3499 GCGGGGCG GCCTAGCTACAAGGA ACCGGGG 12251 3660 GCCCCCC 3499 GCGGGCCG GCCTAGCTACAAGGA ACCGGGC 12246 3661 GAGCCCC C CCCCCC 3499 GCGGGGCG GCCTAGCCTACAAGGA ACCGGGC 12246 3662 GUCCUUG A CACCAUC 3501 GACCGGCG GCCTAGCTACAAGGA ACCGGGC 12253 3660 GCCCCCC C CCCCCC 3499 GCGGGGCG GCCTAGCTACAAGGA ACCGGGC 12253 3660 GCCCCCC C CCCCCCG 3500 GCCTAGCCTACAAGGA ACCGGGC 12263 3660 GCCCCCC C CCCCCCG 3500 GCCTAGCTACAAGGA ACCGGGC 12263 3661 GAGCCCCC C CCCCCCG 3500 GCCTAGCCTACAAGGA ACCGGGC 12263 3662 GCGCCCC C CCCCCCG 3500 GCCTAGCCTACAAGGA GCCTCCGGGG 12253 3660 GCCCCCCC C CCCCCCG 3500 GCCTAGCCTACAAGGA GCCCCGGGG 12253 3660 GCCCCCC C CCCCCCG 3500 GCCTAGCCTACAAGGA GCCCCGGG 1				<u> </u>	
3611 GICCARCE A UNACCCAN 3486	3604	CCUAGCCG G CCCAAAGG	3484	CCTTTGGG GGCTAGCTACAACGA CGGCTAGG	12233
	3613	CCCAAAGG G UCCAAUCA	3485	TGATTGGA GGCTAGCTACAACGA CCTTTGGG	12234
1967 UCACCCAA A UGUNCACC 3488 GETGTACA GGCTAGCTACAGGA TTGGGTGA 12237 3629 ACCCANAUG U ACACCAN 3489 TTGGTGTA GGCTAGCTACAACGA ATTTGGGT 12238 3631 CCANAUGU A CACCANUG 3490 CATTGGTG GGCTAGCTACAACGA ACATTTGG 12239 3633 ANAUGUNG A CCANUGUA 3491 TACATTGG GGCTAGCTACAACGA ACATTTG 12241 3639 ACACCANU G UNGACCC 3492 GGTCTACA GGCTAGCTACAACGA CGTGTGTTA 12241 3639 ACACCANU G UNGACCC 3493 GTGGTCTAC GGCTAGCTACAACGA ATTGGTGT 12241 3639 ACACCANU G UNGACCCA 3493 GTGGTCTAC GGCTAGCTACAACGA ATTGGTGT 12243 3643 CARUGUAG CACUGUGG 3495 CGACGAGG GGCTAGCTACAACGA CTACATTG 12243 3644 AGACCANU G UNGACCAG 3495 CGACGAGG GGCTAGCTACAACGA CTACATTG 12243 3644 AGACCANU G UNGACCAG 3495 CGACGAGG GGCTAGCTACAACGA CTGGTCT 12244 3654 AGGACCUC GUGGAUGG 3495 CGACGAGG GGCTAGCTACAACGA CGACGAG 12246 3659 CUCGUGGG 3497 CGCGGCC GGCTAGCTACAACGA CACCACAU 12246 3659 CUCGUGGG 3498 GGCGCGC GGCTAGCTACAACGA CACCAGAC 12246 3666 GAUGGACG GCCCCCC 3498 GGCGCGC GGCTAGCTACAACGA CACCACAC 12248 3668 UGGCCGGC GCCCCCC 3498 GGCGCGC GGCTAGCTACAACGA CACCACCAC 12248 3668 CGCCCCC 3590 CCGGGGGG GGCTAGCTACAACGA CGCCCCC 12248 3668 CCCCCCGG 3590 CCGGGGGG GGCTAGCTACAACGA CGCCCCC 12248 3678 CCCCCGGA GCGGGCCC 3590 CCGGGGGG GGCTAGCTACAACGA CCCGGCCC 12248 3678 CCCCCGGA GCGGGCCC 3591 GGACGCG GCTAGCTACAACGA CCCGCCC 12253 3691 CCCCCGGA GCGGGCCC 3591 GGACCAGG GCTAGCTACAACGA CCCGCCC 12253 3692 GCCCCCC GCCCCCC 3591 GGACCAGC GCTAGCTACAACGA CCCGCCCC 12253 3692 GCCCCCCC 3591 GGACCAGC GCTAGCTACAACGA CCCGGCC 12253 3692 GCCCCCCC 3591 GGACCAGC GCTAGCTACACACG GCTAGCTACACAC CCCGCCC 3591 GGACCAGC GCTAGCTACACACG GCTAGCTACACACG CCCGGGGC 3594 CCCGGGGG GCTAGCTACACACG GCTAGCTACACACG GCTAGCTACACACG CCCGGGGC 3594 CCCGGGGG GCTAGCTACACACG GCTAGCTACACACG CCCGGGGC 3594 CCCGGGGG	3618	AGGGUCCA A UCACCCAA	3486	TTGGGTGA GGCTAGCTACAACGA TGGACCCT	12235
3631 CCARAUGU A CACCANUG 3490 TEGOTOTA GGCTAGCTACAACGA ATTTGGGT 12238 3631 CCARAUGU A CACCANUG 3491 TACATTGG GGCTAGCTACAACGA CACTATTGG 12239 3637 GUACACCA A UGUAGACC 3492 GGTCTACA GGCTAGCTACAACGA TGGTTATC 12240 3637 GUACACCA A UGUAGACCA 3492 GGTCTACA GGCTAGCTACAACGA TGGTTATC 12241 3631 CAACCANUG UAGACCA 3493 GGTCTACA GGCTAGCTACAACGA TGGTTATC 12242 3643 CAACCANUG UAGACCA 3494 GGTCTAGA GGCTAGCTACAACGA ATTGGTGT 12243 3649 AGACCAGA C CUGGUCG 3494 GGTCTAGA GGCTAGCTACAACGA CTACATTG 12243 3649 AGACCAGA C CUCGGUCG 3495 CGACGAGG GGCTAGCTACAACGA CTACATTG 12243 3649 AGACCAGA C UCGGUCG 3495 CGACGAGG GGCTAGCTACAACGA CACGACCACCA 12245 3659 CUCGGGAGC UCGGUCGC 3496 GGCCAGCTACCAACGA CGACGAG 12246 3662 GUCGGAUG C UCGGUCGC 3497 GCCGGCCC GGCTAGCTACAACGA CGACCAG 12247 3662 GUCGGAUG C GCCCCCCC 3498 GGGGGCCG GGCTAGCTACAACGA CGACCAG 12247 3666 UGGCCGG C CCCCCCCG 3499 GGGGGGGG GGCTAGCTACAACGA CGACCATC 12248 3668 UGGCCGG C CCCCCCCG 3590 CCCGGGGG GGCTAGCTACAACGA CGACCATC 12248 3668 UGGCCGG C CCCCCCCG 3590 CCCGGGGG GGCTAGCTACAACGA CGACCATC 12248 3668 UGGCCGG C CCCCCCCG 3591 GGACCGC GGCTAGCTACAACGA CGCGCCCC 12252 3690 CCCCCGGGA C CCCCCCGG 3591 GGACCGCG GGCTAGCTACAACGA CGCGCCC 12253 3690 CCCUGGAC C CCCCCGG 3591 GGACCGCG GGCTAGCTACAACGA CGCGCCC 12253 3690 GGUCGUUG A CACCAUGC 3501 GGACCGCG GGCTAGCTACAACGA CGCGCCC 12253 3690 GGUCCUUG A CACCAUGCA 3503 GTCAAGG GGCTAGCTACAACGA CACGACCA 12253 3690 GGUCCUUG A CACCAUGCA 3504 GCATGGTG GGCTAGCTACAACGA CACGACCA 12253 3690 GGUCCUUG A CACCAUGCA 3504 GCATGGTG GGCTAGCTACAACGA CACGACCA 12253 3690 GGCCCGCCC 3504 GCATGGTG GGCTAGCTACAACGA CACGACCA 12253 3690 GACCAUGCA GCACCACCA 3504 GCATGGTG GGCTAGCTACAACGA CACGACCA 12253 3690 GACCAUGCA GCCCCCCG 3504 GCATGGTG GGCTAGCTACAACGA CGCGCCCC 12253 3703 GACCACCU GCCCGCCG 3504 GCCCGCCG GCCTAGCTACAACGA C	3621	GUCCAAUC A CCCAAAUG	3487	CATTTGGG GGCTAGCTACAACGA GATTGGAC	12236
3633 CCAANUGU A CACCANUGU 3491 TACATTGG GGCTAGCTACACGA CATTTTT 12240 3637 GUACACCA UGUAGACC 3492 GGTCTACTTCAACGA CTACATTT 12240 3637 GUACACCA UGUAGACC 3492 GGTCTACA GGCTAGCTACAACGA TGGTGTAC 12241 3639 ACACCAUG UGACCCA 3493 CTGGTCTA GGCTAGCTACAACGA ATTGGTGT 12242 3643 CAAUGUAG CACGGACC 3495 CGGCTGG GGCTAGCTACAACGA CTACATTG 12243 3649 AGACCAGG CUCGUCG 3495 CGACGAGG GGCTAGCTACAACGA CTACATTG 12243 3649 AGACCAGG CUCGUCG 3495 CGACGAGG GGCTAGCTACAACGA CTGGTCT 12243 3654 AGGCCUC GUCGGAUGG 3495 CGACGAGG GGCTAGCTACAACGA CCGGCTC 12245 3659 CUCGUGGG 3496 GCCGCCC GGCTAGCTACAACGA CCGACGAG 12246 3659 CUCGUGGG 3498 GGCGCCG GGCTAGCTACAACGA CACCACCAG 12246 3666 GAUGGGCG GCCCCCC 3498 GGCGCCG GGCTAGCTACAACGA CACCACGAG 12247 3666 GAUGGGCG GCCCCCC 3498 GGCGCCG GGCTAGCTACAACGA CACCACGAG 12247 3660 CCCCCGGG GCCCCCC 3590 CCCGGGCG GGCTAGCTACAACGA CACCACGACGA 12247 3660 CCCCCGGG GCCCCCC 3590 CCCGGGGG GGCTAGCTACAACGA CCCGGGGG 12253 3660 CCCCCGGGG GCCCCCC 3590 CCCGGGGG GGCTAGCTACAACGA CCCGGGGG 12253 3660 CCCCCGGGG GCCCCCC 3591 GGACCGCC GGCTAGCTACAACGA CCCGGGGG 12253 3690 GGUCUUG A CACCAUGC 3592 AGCCGCC GGCTAGCTACACACGA CCCGGGGG 12253 3692 UCCUUGA A CACCAUGC 3594 GCATGGTGTGCTACAACGA CCCGGGG 12253 3699 GACCCAUGC A UCCACUGC 3594 GCATGGTGTGCTACAACGA CCCGGGG 12253 3699 CACCAUGC A UCCACUGC 3596 CAGGGTGC GGCTAGCTACACACG CACCAUGC 12252 CCCUUGAC A CACCAUGC 3596 CAGGGTG GGCTAGCTACACACG CACGGGC 12253 3697 GACCAUG A CACCAUGC 3596 GGCGGGG GGCTAGCTACACACG CACGGGC 12253 3699 CACCAUGC CCGGGGGC 3596 GGCGGGG GGCTAGCTACACACG CCCGGGG 12257 3796 CACCAUGC CCGGGGGC 3597 GGCGGGG GGCTAGCTACACACG CCCGGGG 12257 3796 CACCAUGC CGGGGGC 3597 GGCGGGG GGCTAGCTACACACG CCCGGGG 12257 3797 CUCGGGG CGGGGGC	3627	UCACCCAA A UGUACACC	3488	GGTGTACA GGCTAGCTACAACGA TTGGGTGA	12237
3637 ARAUGURC A CCANUGUR 3491 TREATTGG GGCTAGCTACAAGGA GTACATTT 12240 3637 GURACACA A UGUAGACC 3492 GGTCTACA GGCTAGCTACAACGA TGGTGTAC 12242 3633 CAACCAAU G UAGACCAG 3493 CTGGTCTAC GGCTAGCTACAACGA ATTGGTGTAC 12243 3643 CAAUGUAG A CCUGGUCG 3494 GGTCCTGG GGCTAGCTACAACGA ATTGGTGT 12244 3654 AGCACAGA G CCUGGUCG 3495 GGACGAGG GGCTAGCTACAACGA CCTGGTCT 12245 3654 AGGACCAGG A CUGGUCG 3495 GGACGAGG GGCTAGCTACAACGA CCTGGTCT 12245 3659 CUGGUCGG A UGGCCGGC 3497 GCCGGCCG GGCTAGCTACAACGA CCTGGTCT 12245 3659 CUGGUCGG A UGGCCGGC 3497 GCCGGCCG GGCTAGCTACAACGA CCGGACGA 12247 3666 GAUGGCGG C CCCCCGG 3499 GGGCCCG GGCTAGCTACAACGA CCGACGAG 12247 3666 GAUGGCGGC GCCCCCCG 3499 GGGCCCGG GGCTAGCTACAACGA CCGACGAG 12249 3666 GAUGGCGGC GCCCCCCG 3590 GGGCCGACTC 12248 3668 UGGCCGGC GCCCCCG 3590 GGGCCGACTCACAACGA CCGCCCGC 12249 GGGCCGCG GCCCCCGG 3590 CCCCCGGG GCCCCCCG 3590 GGCCACGTACAACGA CCGCCCGCG 12249 GGGCCGCG GCCCCCGG GCCCCCGG GCCCCCGG GCCCCCGCG GCCCCCGG GCCCCCGCG GCCCCCGCG GCCCCCGG GCCCCGCGG GCCCCGCGG GCCCCCGG GCCCCCGG GCCCCCGG GCCCCCGG GCCCCCGG GCCCCCGG GCCCCGGG GCCCCCGG GCCCCCGG GCCCCCGG GCCCCCGG GCCCCCGG GCCCCCGG GCCCCGGGC GCCCCGGG GCCCCCGGG GCCCCGGG GCCCCGGGC GCCCCGGG GCCCCCGGG GCCCCCGGG GCCCCCGGG GCCCCCGGG GCCCCCGGG GCCCCGGG GCCCCGGGC GCCCCGGG GCCCCCGGG GCCCCCGGG GCCCCCGGG GCCCCCGGG GCCCCGGGC GCCCCGGG GCCCCGGGC GCCCCGGGC GCCCCGGGC GCCCCGGGC GCCCCGGGC GCCCCGGGC GCCCCGGG GCCCCGGGC GCCCCGGGC GCCCCGGGC GCCCCGGG GCCCCGGCGG GCCCCGGGC GCCCCGGGC GCCCCGGCGC GCCCCGGGC GCCCCGGCGG	3629	ACCCAAAU G UACACCAA	3489	TTGGTGTA GGCTAGCTACAACGA ATTTGGGT	12238
3639 GARCICCA & UGURGACCA 3492 GGTCTACA GGCTACATACAGA TOGTGTAC 12241 3639 ACACCANU G URAGACCA 3494 GGTCCTGG GGCTAGCTACAACGA ATTGGTGT 12243 3643 ACACCANU G URAGACCA 3494 GGTCCTGG GGCTAGCTACAACGA CTACATTG 12243 3649 AGACCAGA & CUGGUCG 3495 GGACGAGG GGCTAGCTACAACGA CTACATTG 12243 3649 AGACCAGA & UGGGAUGG 3495 GCACGAGG GGCTAGCTACAACGA CATCGGTCT 12246 AGACCAGA & UGGGAUGG 3496 GCACCAGG GGCTAGCTACAACGA CACTGGTCT 12246 3654 AGGACCUG & UGGGAUGG 3497 GCCGGCCA GGCTAGCTACAACGA CACTGCAC 12246 3662 GUUGGAUG & CGCCCCCC 3499 GGCGGCCA GGCTAGCTACAACGA CACTGCAC 12246 3662 GUUGGAUG & CGCCCCCC 3499 GGCGGCCG GGCTAGCTACAACGA CACCGAC 12246 3668 UGGCCGGC & GCCCCCCC 3499 GGGGGGGG GGCTAGCTACAACGA CGCGCCCA 12246 3668 UGGCCGGC & CCCCCGG 3590 GGGGGGGG GGCTAGCTACAACGA CGCGCCCA 12246 3668 UGGCCGGC & CCCCCGG 3590 CGGGGGGG GGCTAGCTACAACGA CGCGGCCA 12250 3660 CCCCGGAC & CCCCCGG 3590 GGAGCCGC GCCCCCCC 3499 GGGCCGCC 2246 3690 CCCCGGAC & CCCCCGG 3590 CGGGCCCC 2246 3590 CCCCGGAC & CCCCCGG 3590 CGGGCCCC 2246 3690 CGGGCCCC 2246 3590 CCCCGGAC & CCCCCGG 12251 3691 CGCCCCCC & ACCCACCC & 3590 CCCCGGAC & CCCCCGG 12251 3692 CCCUUGAC & 3503 TCAAGGA GGCTACCTACAACGA CGCCCCC 12253 3692 CCCUUGAC & ACCAUGC & 3504 CCCCGGAC & GCCTACCTACAACGA CAGGAC 12253 3692 CCCUUGAC & ACCAUGC & 3504 CCCCGGAC & GCCTACCTACAACGA CAGGAC 12253 3692 CCCUUGAC & CACCUUGC & 3506 CAGGTGCC & GGCTACCTACAACGA CAGGAC 12253 3695 UUQACACC & UGCACCG & 3504 CCCCACCG & GCCTACCTACAACGA CAGGAC 12254 3695 CACCAUGC & CACCUUGC & 3507 CCCAUGC & GCCTACCTACAACGA CAGGAC 12254 3704 CACCAUGC & CACCUUGC & 3507 CCCAUGC & GCCTACCTACAACGA CAGCACT 12256 3709 CUCCUGGG & CGCGCCCC & 3511 GCCCCCC & GCCCCCC & 12257 3709 CUCCUGGG & CCCCCCC & 3511 GCCCCCC & GCCTACCTACAACGA CCCCACCG 12261 3714 GCCCCCC & CCCCCCC & 3511 GCCCCCC & GCCTACCTACAACGA CCCCACCC 12267 3714 GCCCCCC	3631	CCAAAUGU A CACCAAUG	3490	CATTGGTG GGCTAGCTACAACGA ACATTTGG	12239
3639 ACACCAAU G UNGACCAG 3493 CTOGTCTA GGCTAGCTACAACGA ATTGGTGT 12242 3643 CAAUGUBG A CCUGGUCG 3494 GGTCCTGG GGCTAGCTACAACGA CTTGGTCT 12244 3654 AGACCAGB A CUCUGGUCG 3495 GGCGGGCG GGCTAGCTACAACGA CCTGGTCT 12244 3654 AGACCAGB A CUCUGGUCG 3495 GGCGGCG GGCTAGCTACAACGA CCTGGTCT 12245 3659 CUCGUCGG A UGGCCGGC 3496 GGCGGCCG GGCTAGCTACAACGA CCGGACGTC 12245 3662 GUCGGAUG C CCCCGCG 3499 GGCGGCCG GGCTAGCTACAACGA CCGACGAG 12247 3666 GAUGGCCGC GCCCCCCC 3499 GGCGGCCG GGCTAGCTACAACGA CCGACGAG 12247 3666 GAUGGCCGC GCCCCCCC 3499 GGGGGCG GGCTAGCTACAACGA CCGACGAC 12247 3667 CCCCCGGG C CCCCCC 3499 GGGGGCG GGCTAGCTACAACGA CCGCCCAC 12249 3668 UGGGCGGC GCCCCCCC 3590 GGGCCATC 12248 3678 CCCCCGGA C CGCGCCCC 3591 GGACCGCG GGCTAGCTACAACGA CCGCCCCA 12250 3683 GGGGCGC CCCCUCGG 3501 GGACCGC GGCTACGTACAACGA CCGCCCCC 12250 3683 GGACGCG C CCCUCUGC 3502 AAGGACCG GGCTACGTACAACGA CCGCCCCC 12250 3699 GGUCCUUG A CACCUGC 3503 TCAAGGA GGCTACCTACAACGA CCGCCCCC 12253 3690 GGUCCUUG A CACCUGC 3504 GCATGGTG GGCTACGTACAACGA CGCCTCC 12253 3691 UUGACACC A UGCACCU 3505 GTCAAGTA GGCTACGTACAACGA CGCCTCC 12253 3692 UUCUUGAC A CCAUGCA 3506 CAGGTCG GGCTACGTACAACGA GGCTACCTACAAGGA CCTACAGGA CCCGCCG 12253 3699 GACACCUU C ACCUGCG 3508 GCCCCAGG GGCTACGTACAACGA GGTTACTACACGA CCCGCGCG 12257 3703 AUGCACC C UGCGGCC 3508 GCCCCAGG GGCTACGTACAACGA GGTTGCTACACGA CCCGCGG 12257 3704 GACACCUU C CUUGAC 3509 AGCCCCCG GGCTACGTACAACGA AGGTCC 12257 3705 CACCUGCG C CGCGCCCG 3510 GGCCCAGG GGCTACGTACAACGA AGGTCC 12257 3706 CACCUGCG C CCUGGACC 3511 GGCCCAGG GGCTACGTACAACGA CGCCGGCG 12261 3715 CGCCCGGG C CCCGGGCC 3511 GGCCCAGG GGCTACGTACAACGA CGCCAGGT 12267 3726 UUUACUUG C UCCGGGG 3514 CTCCGTG GGCTACGTACAACGA CAAGTAAA 12263 3727 GGCCCCGG G CCCGGGCG 3514 CTCCGTG GGCTACGTACAACGA CAAGTAAA 12263 3728 CUCGGGG C UCCGGGC 3524 CCC	3633	AAAUGUAC A CCAAUGUA	3491	TACATTGG GGCTAGCTACAACGA GTACATTT	12240
3643 CAAUGUAG A CCAGGACC 3494 GGTCCTGG GGCTACTACAACGA CTGGGTC 12243 3649 AGACCAGG A CCUGGUCG 3495 GGACGAGG GGTTACTACAACGA CCTGGGTCT 12245 3654 AGGCCUCG UCGGUCGG 3496 GCACCAGGG GGTTACCTACAACGA CGTGGGTCT 12245 3659 CUCGGUCGG 3497 GCCGGCCA GGCTACCTACAACGA CGCGACGAG 12246 3662 GUCGGUCGG GCCCCCCC 3499 GGCGGCA GGCTACCTACAACGA CGCACCACCACCACCACCACCACCACCACCACCACCACCA	3637	GUACACCA A UGUAGACC	3492	GGTCTACA GGCTAGCTACAACGA TGGTGTAC	12241
3649	3639	ACACCAAU G UAGACCAG	3493	CTGGTCTA GGCTAGCTACAACGA ATTGGTGT	12242
3654 AGGACCUC G UCGGAUGG 3496 CCATCCGA GGCTAGCTACAACGA GAGGTCCT 12245 3659 CUGGGUGG A UGGCCGGCC 3497 GCCGGCGC GGCTAGCTACAACGA CCACGGAC 12246 3662 GUGGGAUG G CCGGCGCCCC 3499 GGCGGGG GGCTAGCTACAACGA CGCCGGAC 12247 3666 GAUGGCGG C GCCCCCCGG 3499 GGGGGGG GGCTAGCTACAACGA GCCCCCT 12248 3668 UGGCCGGC G CCCCCCGG 3590 GGGGGGG GGCTAGCTACAACGA GCCGCCC 12249 3668 UGGCCGGC G CCCCCCGG 3590 GGGGGGG GGCTAGCTACAACGA GCCGCCC 12249 3668 UGGCCGGC G CCCCCCGG 3590 GGGGCGGG GGCTAGCTACAACGA CCGGGGG 12251 3680 CCCCCCGGA C GCCGCCCC 3591 GGACCCGC GGCTAGCTACAACGA CCGGGGC 12251 3683 GGAGCCG G UCCUUGAC 3503 GTCAAGGA GGCTAGCTACAACGA CCGCCTCC 12252 3690 CCCUCGAC A CACCAUGC 3504 GCATGGTG GCCTACCAACGA CCGCCTCC 12253 3692 UCCUUGAC A CACCAUGC 3505 GTGCATGG GGCTAGCTACAACGA CCGCCTCC 12253 3692 UCCUUGAC A CACCAUGC 3505 GTGCATGG GGCTAGCTACAACGA CAGGACC 12253 3695 UUGACACCC A UGCACCUG 3506 GTGCATGG GGCTAGCTACAACGA GTCAAGGA 12254 3699 CACCAUGC CACCUGCG 3507 GGCAGGTG GGCTAGCTACAACGA ATGGTCA 12255 3699 CACCAUGC CACCUGCG 3508 GCCCAGGG GGCTAGCTACAACGA ATGGTCA 12255 3699 CACCAUGC CACCUGCG 3508 GCCCAGGG GGCTAGCTACAACGA ATGGTCA 12257 3699 CACCAUGC CACCUGCG 3508 GCCCAGGG GGCTAGCTACAACGA ATGGTCA 12257 3709 UUGCGCGC CGGCUCG 3509 ACCCAUGC GCGCGGC 3508 GCCCAGGG GGCTAGCTACAACGA CATGGTC 12257 3709 UUGCGCGC CGGCGCG 3511 GGTCCGAG GGCTAGCTACAACGA CATGGTC 12257 3719 CUGCGGCC CGGCGCC 3511 GGTCCGAG GGCTAGCTACAACGA CATGGTC 12260 3726 UUDACUUG UCACGAGA 3515 GGCCAGG GGCTAGCTACAACGA CAGCGC 12261 3721 GGACCUU A CUUGGUCA 3511 GGTCCGAG GGCTAGCTACAACGA CAGCGC 12261 3721 GGACCUU CAGAGACA 3515 GGCCAGG GGCTAGCTACAACGA CAGCGC 12263 3728 CUUGCGGC CAGAGCAC 3515 GGTCAGCTACAACGA CAGCGCC 12263 3726 CACGAGAC CAGAGCAC 3515 GGTCAGCTACAACGA CAGCGCC 12263 3724 CCCGCGG GGCTAGCTACAACGA CAGCGGC 12263 3724	3643	CAAUGUAG A CCAGGACC	3494	GGTCCTGG GGCTAGCTACAACGA CTACATTG	12243
3659	3649	AGACCAGG A CCUCGUCG	3495	CGACGAGG GGCTAGCTACAACGA CCTGGTCT	12244
3662 GUCGGAUG G CCGCGCCC 3498 GGCGCCGG GCTAGCTACAACGA CATCCGAC 12247 3666 GAGCGCG G CCCCCCGG 3499 GGGGGG GCTAGCTACAACGA CGCCGCCAC 12248 3666 GGGCGGC G CCCCCCGG 3500 CCGGGGGG GGTAGCTACAACGA GCCGGCCAC 12248 3668 UGGCGGGC G CCCCCCGG 3501 GGACGGG GGTAGCTACAACGA CCCGGCCC 12250 3680 CCCCGGAG G CGCGCCCC 3501 AGGACGG G GGTAGCTACAACGA CCCGCCCC 12252 3680 CGGAGCGG G UCCUUGAC 3503 AGAGACGG G GCTAGCTACAACGA CACGCCCCC 12252 3690 GGUCCUUG A CACAUGCA 3504 GCATGGTG GGCTAGCTACAACGA CAAGGAC 12253 3692 UCCUUGAC A CCAUGCA 3506 CAGGTGCA GGCTAGCTACAACGA GTAGCTACAACGA 12255 3697 GACACCAU G CACCUGCG 3507 CGCAGGTG GGCTAGCTACAACGA ATGGTCA 12256 3699 CACCAUGC A CCUGCGC 3508 GCCGCAGG GGCTAGCTACAACGA ATGGTCT 12256 3703 AUGCACUG C C CUGGGC 3510 AGCGACGG GGCTAGCTACAACGA CAGGACATGTCACACGA CAGCACATGTACAACACACACACACACACACACACACACA	3654	AGGACCUC G UCGGAUGG	3496	CCATCCGA GGCTAGCTACAACGA GAGGTCCT	12245
3666 GAUGGCCG CCCCCCCC 3499 GGGGGGC GCTAGCTACAACGA CGGCCATC 12248 3668 UGGCCGGC CCCCCCGGA 3500 CCGGGGGG GGCTAGCTACAACGA GCCGGGG 12250 3678 CCCCCGGA G GGGUCCUU 3501 GGACGGG GGCTAGCTACAACGA GCCCGGGG 12251 3683 GACGGGG UCCUUGAC 3503 GTCAAGGA GGCTAGCTACAACGA GCCCCCT 12252 3690 GGUCCUUGA A CACCAUGC 3503 GTCAAGGA GCCTAGCTACAACGA ACCACAGC 12253 3692 UCCUUGAC A CCAUGCAC 3506 CAGGTGGA GGCTAGCTACAACGA GTCAAGGA 12254 3695 UUGACACC A UGCACCUGG 3506 CAGGTGG GGCTAGCTACAACGA GGTTGCTACAACGA AGCTGTGC 3507 AGGGCGG GGCTAGCTACAACGA AGCTGGTTCCAACGA	3659	CUCGUCGG A UGGCCGGC	3497	GCCGGCCA GGCTAGCTACAACGA CCGACGAG	12246
3668 UGGCCGGC G CCCCCGG 3500 CCGGGGGG GGCTAGCTACAACGA GCCGGCA 12249 3678 CCCCGGA G GGGGUCC 3501 GGACCGG GGCTAGCTACAACGA GCTCGGGG 12251 3680 CCCCGGAG G GGUCCUU 3502 AAGACCG GGCTAGCTACAACGA GCTCCGGG 12251 3690 GUCCUUGA 3503 GTCAAGGA GGCTAGCTACAACGA CCGCGC 12252 3690 GUCCUUGA 2505 GGCTAGCTACAACGA CAAGCACA 12253 3699 GUCCUUGAC 1505 GGCAGCTG GGCTAGCTACAACGA GGTAAGCTACAACGA 12255 3697 GACACCAU C ACCUGGG 3507 GCCAGAGG GGCTAGCTACAACGA AGCTGGTT 12257 3703 AUGCACCU C GGGGGCU 3509 ACCCGCGG GGCTAGCTACAACGA AGCTGGTT 12258 3706 CACCUGG GGGCUGGG 3510 CCGAGCG GGCTAGCTACAACGA AGCTGGTT 12257 3709 CUGGGGG CUGGACC 3511 GGTCAGCTACAACGA	3662	GUCGGAUG G CCGGCGCC	3498	GGCGCCGG GGCTAGCTACAACGA CATCCGAC	12247
3678 CCCCCGGA G CGGGUCCU 3501 GGACCGCG GGCTAGCTACAACGA TCCGGGGG 12250 3680 CCCGGAGG G CGGUCCUU 3502 AAGGACCG GGCTAGCTACAACGA GCCGCGGG 12251 3680 GGAGGCGG G UCCUUGAC 3503 GTCAAGGA GGCTACCTACAACGA GCGCGCC 12252 3690 GGUCCUUGA C ACCAUGC 3504 GCATGGTG GGCTACAACGA CGGCGCC 12253 3692 UCCUUGAC A CACAUGCA 3505 GTGAATGG GGCTACCAACGA GTCAACGAG 267AAGGA 3695 UUGACACC A UGCACCUG 3506 CAGGTGCA GGCTAGCTACAACGA GTCAACGA 267TTCAA 3697 GACACAU G CACCUGCG 3507 CGCAGGGG GGCTAGCTACAACGA ATGGTTC 12256 3699 CACCAUGC A CCUGCGG 3509 ACCCACGG GGTAGCTACAACGA AGGTTGCT 12256 3703 AUGCACCU G CGGCCUGG 3510 CCGAGCG GCTACCTACAACGA AGGTTGCT 12259 3706 CACCUGGG G CUGCGACC 3511 CGGACCGG GGCTACCTACAACGA AGCAGCA 12263 3715 CGGCUCGG A CCUUJACU 3512 AGTACAAGG GGCTACCTACAACGA CGCAGCC 12261 3721 GGACCUUJU A CUUGCGA 3513 TCACCAGGG GGCTACCTACAACGA CCAAGT	3666	GAUGGCCG G CGCCCCCC	3499	GGGGGCG GGCTAGCTACAACGA CGGCCATC	12248
3680 CCCGGAGC G CGGUCCUU 3502 AAGGACCG GGCTACTACAACGA GCTCCTCC 12251 3683 GGAGCGCG G UCCUUGAC 3503 GTCAAGGA GGCTACCAACGA CGCGCTCC 12252 3690 GGUCCUUGA C A CACAUGCA 3505 GTGATGGG GGCTAGCTACAACGA CAGGACC 12253 3692 UCCUUGAC A CCAUGCAC 3505 GTGCATGG GGCTAGCTACAACGA GTCAACGA 12254 3695 UUGACACC A UGCACCUG 3506 CAGGTGCA GGCTAGCTACAACGA GTTGCTACA 12255 3699 GACACAUG C ACCUGCG 3508 GCCGCAGG GGCTAGCTACAACGA GTTGTGCT 12257 3703 AUGACACU G CGGCGGCU 3509 ACCCGCG GGCTAGCTACAACGA AGGTGCAT 12257 3706 CACCUGCG G CGCGCCG 3510 CCGAGCCG GCTAGCTACAACGA AGGTGCAT 12259 3709 CUGCGGCG G CUUGACC 3511 GGTCCGGAG GCTACCTACAACGA CGCCGCAG 12260 3721 GGACCUUU A CUUGCUC 3513 TCACCAAGG GCCTACAACGA AAAGGTC 12261 3724 GUUACUUG G UCACGGA 3514 TCTCGTGA GCCTACAACGA AAAGGTC 12261 3722 ACUUGGUC A CGAGCAC 3515 GTGTCTCA GCC	3668	UGGCCGGC G CCCCCCGG	3500	CCGGGGG GGCTAGCTACAACGA GCCGGCCA	12249
3680 CCCGGAGC G CGGUCCUU 3502 AAGGACCG GGCTACTACAACGA GCTCCTCC 12251 3683 GGAGCGCG G UCCUUGAC 3503 GTCAAGGA GGCTACCAACGA CGCGCTCC 12252 3690 GGUCCUUGA C A CACAUGCA 3505 GTGATGGG GGCTAGCTACAACGA CAGGACC 12253 3692 UCCUUGAC A CCAUGCAC 3505 GTGCATGG GGCTAGCTACAACGA GTCAACGA 12254 3695 UUGACACC A UGCACCUG 3506 CAGGTGCA GGCTAGCTACAACGA GTTGCTACA 12255 3699 GACACAUG C ACCUGCG 3508 GCCGCAGG GGCTAGCTACAACGA GTTGTGCT 12257 3703 AUGACACU G CGGCGGCU 3509 ACCCGCG GGCTAGCTACAACGA AGGTGCAT 12257 3706 CACCUGCG G CGCGCCG 3510 CCGAGCCG GCTAGCTACAACGA AGGTGCAT 12259 3709 CUGCGGCG G CUUGACC 3511 GGTCCGGAG GCTACCTACAACGA CGCCGCAG 12260 3721 GGACCUUU A CUUGCUC 3513 TCACCAAGG GCCTACAACGA AAAGGTC 12261 3724 GUUACUUG G UCACGGA 3514 TCTCGTGA GCCTACAACGA AAAGGTC 12261 3722 ACUUGGUC A CGAGCAC 3515 GTGTCTCA GCC		CCCCCGGA G CGCGGUCC	3501	GGACCGCG GGCTAGCTACAACGA TCCGGGGG	12250
3683 GGAGCGCG G UCCUUGAC 3503 GTCAAGGA GGCTACAACGA CCGCCTCC 12252 3690 GGUCCUUGA A CACCAUGC 3504 GCATGGTG GGCTAGCTACAACGA CAAGGACC 12253 3692 UCCUUGAC A CACUGCC 3505 GTGCATGG GGCTAGCTACAACGA GTCAAGGA 12254 3695 UUGACACC A UGCACUGC 3506 CAGGTGG GGCTAGCTACAACGA GTCAAGGA 12255 3697 GACACAUG A CCUGCGC 3507 GCGAGGG GGCTAGCTACAACGA ATGGTGT 12257 3699 CACCAUGC A CCUGCGC 3508 GCCGCAGG GGCTAGCTACAACGA ATGGTGT 12257 3703 AUGCACUGC G CGGCCC 3509 AGCGCCG GGCTAGCTACAACGA AGGTGCAT 12258 3706 CACCUGCG G CUCGGACC 3511 CGGACCG GGCTAGCTACAACGA CGCAGGTG 12260 3715 CGGCCGG A CCUUUUCU 3512 AGTAAAGG GGCTACCAACGA CCCCCCAGA 12261 3721 GGACCUUU A CUUGGUCA 3513 TCACCAGG GGCTACCAACGA CAAGTAAA 12263 3722 ACUUGUUC A CAGAGA 3514 TCTCGTGA GGCTACAACGA CAAGTAAA 12263 3734 GUCACGAG A CACCUGAU 3515 GTGTCTCC GGCTACAACGA GACCAAGT 12264<					
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3757 UCCGGUGC G CCGGCGGG 3524 CCCGCCGG GGCTAGCTACAACGA GCACCGGA 12273 3761 GUGCGCCG G CGGGGUGA 3525 TCACCCCG GGCTAGCTACAACGA CGGCGCAC 12274 3766 CCGGCGGG G UGACAGCA 3526 TGCTGTCA GGCTAGCTACAACGA CCCGCCGG 12275 3769 GCGGGGUG A CAGCAGGG 3527 CCCTGCTG GGCTAGCTACAACGA CACCCCGC 12276 3772 GGGUGACA G CAGGGGGA 3528 TCCCCCTG GGCTAGCTACAACGA TGTCACCC 12277 3781 CAGGGGGA G CUUACUAU 3529 ATAGTAAG GGCTAGCTACAACGA TCCCCTG 12278 3785 GGGAGCUU A CUAUCCCC 3530 GGGGATAG GGCTAGCTACAACGA AAGCTCCC 12279 3788 AGCUUACU A UCCCCCAG 3531 CTGGGGGA GGCTAGCTACAACGA AGTAAGCT 12280 3797 UCCCCCAG G CCCAUCUC 3532 GAGATGG GGCTAGCTACAACGA AGTAAGCT 12281 3801 CCAGGCCC A UCUCCUAC 3533 GTAGGAGA GGCTAGCTACAACGA GGGCTGG 12282 3808 CAUCUCCU A CUUGAAGG 3534 CCTTCAAG GGCTAGCTACAACGA AGGAGATG 12283 3817 CUUGAAGG G CUCCUCGG 3535 CCGAGGAG GGCTAGCTACAACGA AGGAGATG 12284 3826 CUCCUCGG G CGGUCCAC 3536 GTGGACCG GGCTAGCTACAACGA CCTTCAAG 12284 3829 CUCGGGCG G UCCACUGC 3537 GCAGTGGA GGCTAGCTACAACGA CGCCCGAG 12287 3833 GGCGGUCC A CUGCUCUG 3538 CAGAGCAG GGCTAGCTACAACGA CGCCCGAG 12287			5		
3761 GUGCGCCG G CGGGGUGA 3525 TCACCCCG GGCTAGCTACAACGA CGGCGCAC 12274 3766 CCGGCGGG G UGACAGCA 3526 TGCTGTCA GGCTAGCTACAACGA CCCGCCGG 12275 3769 GCGGGGUG A CAGCAGGG 3527 CCCTGCTG GGCTAGCTACAACGA CACCCCGC 12276 3772 GGGUGACA G CAGGGGGA 3528 TCCCCCTG GGCTAGCTACAACGA TGTCACCC 12277 3781 CAGGGGGA G CUUACUAU 3529 ATAGTAAG GGCTAGCTACAACGA TCCCCTG 12278 3785 GGGAGCUU A CUAUCCCC 3530 GGGGATAG GGCTAGCTACAACGA AAGCTCCC 12279 3788 AGCUUACU A UCCCCCAG 3531 CTGGGGGA GGCTAGCTACAACGA AGTAAGCT 12280 3797 UCCCCCAG G CCCAUCUC 3532 GAGATGG GGCTAGCTACAACGA AGTAAGCT 12281 3801 CCAGGCCC A UCUCCUAC 3533 GTAGGAGA GGCTAGCTACAACGA CTGGGGGA 12281 3808 CAUCUCCU A CUUGAAGG 3534 CCTTCAAG GGCTAGCTACAACGA AGGAGATG 12282 3817 CUUGAAGG G CUCCUCGG 3535 CCGAGGAG GGCTAGCTACAACGA CCTTCAAG 12284 3826 CUCCUCGG G CGGUCCAC 3536 GTGGACCG GGCTAGCTACAACGA CCGAGGAG 12285 3829 CUCGGGCG G UCCACUGC 3537 GCAGTGGA GGCTAGCTACAACGA CGCCCGAG 12287					
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3772 GGGUGACA G CAGGGGGA 3528 TCCCCCTG GGCTAGCTACAACGA TGTCACCC 12277 3781 CAGGGGGA G CUUACUAU 3529 ATAGTAAG GGCTAGCTACAACGA TCCCCCTG 12278 3785 GGGAGCUU A CUAUCCCC 3530 GGGGATAG GGCTAGCTACAACGA AAGCTCCC 12279 3788 AGCUUACU A UCCCCCAG 3531 CTGGGGGA GGCTAGCTACAACGA AGTAAGCT 12280 3797 UCCCCCAG G CCCAUCUC 3532 GAGATGGG GGCTAGCTACAACGA CTGGGGGA 12281 3801 CCAGGCCC A UCUCCUAC 3533 GTAGGAGA GGCTAGCTACAACGA GGGCCTGG 12282 3808 CAUCUCCU A CUUGAAGG 3534 CCTTCAAG GGCTAGCTACAACGA AGGAGATG 12283 3817 CUUGAAGG G CUCCUCGG 3535 CCGAGGAG GGCTAGCTACAACGA CCTTCAAG 12284 3826 CUCCUCGG G CGGUCCAC 3536 GTGGACCG GGCTAGCTACAACGA CCGAGGAG 12285 3829 CUCCGGCC G UCCACUCC 3537 GCAGTGGA GGCTAGCTACAACGA CGCCCGAG 12286 3833 GGCGGUCC A CUGCUCUG 3538 CAGAGCAG GGCTAGCTACAACGA GGACCGCC 12287					
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3833 GGCGGUCC A CUGCUCUG 3538 CAGAGCAG GGCTAGCTACAACGA GGACCGCC 12287					
3836 GGUCCACU G CUCUGCCC 3539 GGGCAGAG GGCTAGCTACAACGA AGTGGACC 12288					12287
	3836	GGUCCACU G CUCUGCCC	3539	GGGCAGAG GGCTAGCTACAACGA AGTGGACC	12288

T3041 T	ACUCCUCI C CCCITICCC	3540	COCARCO COCCARCONACAACCA ACACCACT	12289
3841	ACUGCUCU G CCCUUCGG	3540	CCGAAGGG GGCTAGCTACAACGA AGAGCAGT ACAACGTG GGCTAGCTACAACGA CCCGAAGG	12290
3851	CCUUCGGG G CACGUUGU	3541	CCACAACG GGCTAGCTACAACGA CCCGAAGG	12291
3853	UUCGGGGC A CGUUGUGG	3542		
3855	CGGGGCAC G UUGUGGGC	3543	GCCCACAA GGCTAGCTACAACGA GTGCCCCG	12292
3858	GGCACGUU G UGGGCAUC	3544	GATGCCCA GGCTAGCTACAACGA AACGTGCC	12293
3862	CGUUGUGG G CAUCUUCC	3545	GGAAGATG GGCTAGCTACAACGA CCACAACG	12294
3864	UUGUGGGC A UCUUCCGG	3546	CCGGAAGA GGCTAGCTACAACGA GCCCACAA	12295
3873	UCUUCCGG G CUGCUGUG	3547	CACAGCAG GGCTAGCTACAACGA CCGGAAGA	12296
3876	UCCGGGCU G CUGUGUGC	3548	GCACACAG GGCTAGCTACAACGA AGCCCGGA	12297
3879	GGGCUGCU G UGUGCACC	3549	GGTGCACA GGCTAGCTACAACGA AGCAGCCC	12298
3881	GCUGCUGU G UGCACCCG	3550	CGGGTGCA GGCTAGCTACAACGA ACAGCAGC	12299
3883	UGCUGUGU G CACCCGGG	3551	CCCGGGTG GGCTAGCTACAACGA ACACAGCA	12300
3885	CUGUGUGC A CCCGGGGG	3552	CCCCCGGG GGCTAGCTACAACGA GCACACAG	12301
3894	CCCGGGGG G UUGCGAAG	3553	CTTCGCAA GGCTAGCTACAACGA CCCCCGGG	12302
3897	GGGGGGUU G CGAAGGCG	3554	CGCCTTCG GGCTAGCTACAACGA AACCCCCC	12303
3903	UUGCGAAG G CGGUGGAC	3555	GTCCACCG GGCTAGCTACAACGA CTTCGCAA	12304
3906	CGAAGGCG G UGGACUUU	3556	AAAGTCCA GGCTAGCTACAACGA CGCCTTCG	12305
3910	GGCGGUGG A CUUUGUAC	3557	GTACAAAG GGCTAGCTACAACGA CCACCGCC	12306
3915	UGGACUUU G UACCCGUU	3558	AACGGGTA GGCTAGCTACAACGA AAAGTCCA	12307
3917	GACUUUGU A CCCGUUGA	3559	TCAACGGG GGCTAGCTACAACGA ACAAAGTC	12308
3921	UUGUACCC G UUGAGUCU	3560	AGACTCAA GGCTAGCTACAACGA GGGTACAA	12309
3926	CCCGUUGA G UCUAUGGA	3561	TCCATAGA GGCTAGCTACAACGA TCAACGGG	12310
3930	UUGAGUCU A UGGAAACU	3562	AGTTTCCA GGCTAGCTACAACGA AGACTCAA	12311
3936	CUAUGGAA A CUACCAUG	3563	CATGGTAG GGCTAGCTACAACGA TTCCATAG	12312
3939	UGGAAACU A CCAUGCGG	3564	CCGCATGG GGCTAGCTACAACGA AGTTTCCA	12313
3942	AAACUACC A UGCGGUCC	3565	GGACCGCA GGCTAGCTACAACGA GGTAGTTT	12314
3944	ACUACCAU G CGGUCCCC	3566	GGGGACCG GGCTAGCTACAACGA ATGGTAGT	12315
3947	ACCAUGCG G UCCCCGGU	3567	ACCGGGGA GGCTAGCTACAACGA CGCATGGT	12316
3954	GGUCCCCG G UCUUCACG	3568	CGTGAAGA GGCTAGCTACAACGA CGGGGACC	12317
3960	CGGUCUUC A CGGACAAC	3569	GTTGTCCG GGCTAGCTACAACGA GAAGACCG	12318
3964	CUUCACGG A CAACUCGU	3570	ACGAGTTG GGCTAGCTACAACGA CCGTGAAG	12319
3967	CACGGACA A CUCGUCCC	3571	GGGACGAG GGCTAGCTACAACGA TGTCCGTG	12320
3971	GACAACUC G UCCCCCCC	3572	GGGGGGA GGCTAGCTACAACGA GAGTTGTC	12321
3981	CCCCCCA G CCGUACCG	3573	CGGTACGG GGCTAGCTACAACGA TGGGGGGG	12322
3984	CCCCAGCC G UACCGCAG	3574	CTGCGGTA GGCTAGCTACAACGA GGCTGGGG	12323
3986	CCAGCCGU A CCGCAGAC	3575	GTCTGCGG GGCTAGCTACAACGA ACGGCTGG	12324
3989	GCCGUACC G CAGACAUU	3576	AATGTCTG GGCTAGCTACAACGA GGTACGGC	12325
3993	UACCGCAG A CAUUCCAA	3577	TTGGAATG GGCTAGCTACAACGA CTGCGGTA	12326
3995	CCGCAGAC A UUCCAAGU	3578	ACTTGGAA GGCTAGCTACAACGA GTCTGCGG	12327
4002	CAUUCCAA G UGGCCCAC	3579	GTGGGCCA GGCTAGCTACAACGA TTGGAATG	12328
4005	UCCAAGUG G CCCACCUA	3580	TAGGTGGG GGCTAGCTACAACGA CACTTGGA	12329
4009	AGUGGCCC A CCUACACG	3581	CGTGTAGG GGCTAGCTACAACGA GGGCCACT	12330
4013	GCCCACCU A CACGCUCC	3582	GGAGCGTG GGCTAGCTACAACGA AGGTGGGC	12331
4015	CCACCUAC A CGCUCCCA	3583	TGGGAGCG GGCTAGCTACAACGA GTAGGTGG	12332
4017	ACCUACAC G CUCCCACU	3584	AGTGGGAG GGCTAGCTACAACGA GTGTAGGT	12332
4023	ACCUACAC G CUCCCACO ACGCUCCC A CUGGCAGC	3585	GCTGCCAG GGCTAGCTACAACGA GGGAGCGT	12333
4023	UCCCACUG G CAGCGGCA	3586		
4027	CACUGGCA G CGGCAAGA		TGCCGCTG GGCTAGCTACAACGA CAGTGGGA TCTTGCCG GGCTAGCTACAACGA TGCCAGTG	12335
	UGGCAGCG G CAAGAGCA	3587		12336
4033	CGGCAAGA G CACUAAGG	3588	TGCTCTTG GGCTAGCTACAACGA CGCTGCCA	12337
4039		3589	CCTTAGTG GGCTAGCTACAACGA TCTTGCCG	12338
4041	GCAAGAGC A CUAAGGUA	3590	TACCTTAG GGCTAGCTACAACGA GCTCTTGC	12339
4047	GCACUAAG G UACCGGCU	3591	AGCCGGTA GGCTAGCTACAACGA CTTAGTGC	12340
4049	ACUAAGGU A CCGGCUGC	3592	GCAGCCGG GGCTAGCTACAACGA ACCTTAGT	12341
4053	AGGUACCG G CUGCAUAU	3593	ATATGCAG GGCTAGCTACAACGA CGGTACCT	12342
4056	UACCGGCU G CAUAUGCA	3594	TGCATATG GGCTAGCTACAACGA AGCCGGTA	12343
4058	CCGGCUGC A UAUGCAGC	3595	GCTGCATA GGCTAGCTACAACGA GCAGCCGG	12344

4060	GGCUGCAU A UGCAGCCC	3596	GGGCTGCA GGCTAGCTACAACGA ATGCAGCC	12345
4060	CUGCAUAU G CAGCCCAA	3597	TTGGGCTG GGCTAGCTACAACGA ATATGCAG	12346
4065	CAUAUGCA G CCCAAGGG	3598	CCCTTGGG GGCTAGCTACAACGA TGCATATG	12347
4073	GCCCAAGG G UACAAAGU	3599	ACTTTGTA GGCTAGCTACAACGA CCTTGGGC	12348
4075	CCAAGGU A CAAAGUGC	3600	GCACTTTG GGCTAGCTACAACGA ACCCTTGG	12349
4080	GGUACAAA G UGCUCGUC	3601	GACGAGCA GGCTAGCTACAACGA TTTGTACC	12350
4082	UACAAAGU G CUCGUCCU	3602	AGGACGAG GGCTAGCTACAACGA ACTTTGTA	12351
4086	AAGUGCUC G UCCUAAAU	3603	ATTTAGGA GGCTAGCTACAACGA GAGCACTT	12352
4093	CGUCCUAA A UCCGUCCG	3604	CGGACGGA GGCTAGCTACAACGA TTAGGACG	12353
4097	CUAAAUCC G UCCGUUAC	3605	GTAACGGA GGCTAGCTACAACGA GGATTTAG	12354
4101	AUCCGUCC G UUACCGCC	3606	GGCGGTAA GGCTAGCTACAACGA GGACGGAT	12355
4104	CGUCCGUU A CCGCCACC	3607	GGTGGCGG GGCTAGCTACAACGA AACGGACG	12356
4107	CCGUUACC G CCACCUUA	3608	TAAGGTGG GGCTAGCTACAACGA GGTAACGG	12357
4110	UUACCGCC A CCUUAGGG	3609	CCCTAAGG GGCTAGCTACAACGA GGCGGTAA	12358
4118	ACCUUAGG G UUUGGGGC	3610	GCCCCAAA GGCTAGCTACAACGA CCTAAGGT	12359
4125	GGUUUGGG G CGUAUAUG	3611	CATATACG GGCTAGCTACAACGA CCCAAACC	12360
4127	UUUGGGC G UAUAUGUC	3612	GACATATA GGCTAGCTACAACGA GCCCCAAA	12361
4129	UGGGCGU A UAUGUCUA	3613	TAGACATA GGCTAGCTACAACGA ACGCCCCA	12362
4131	GGGCGUAU A UGUCUAAG	3614	CTTAGACA GGCTAGCTACAACGA ATACGCCC	12363
4133	GCGUAUAU G UCUAAGGC	3615	GCCTTAGA GGCTAGCTACAACGA ATATACGC	12364
4140	UGUCUAAG G CACACGGU	3616	ACCGTGTG GGCTAGCTACAACGA CTTAGACA	12365
4142	UCUAAGGC A CACGGUGU	3617	ACACCGTG GGCTAGCTACAACGA GCCTTAGA	12366
4144	UAAGGCAC A CGGUGUCG	3618	CGACACCG GGCTAGCTACAACGA GTGCCTTA	12367
4147	GGCACACG G UGUCGAUC	3619	GATCGACA GGCTAGCTACAACGA CGTGTGCC	12368
4149	CACACGGU G UCGAUCCU	3620	AGGATCGA GGCTAGCTACAACGA ACCGTGTG	12369
4153	CGGUGUCG A UCCUAACA	3621	TGTTAGGA GGCTAGCTACAACGA CGACACCG	12370
4159	CGAUCCUA A CAUCAGAA	3622	TTCTGATG GGCTAGCTACAACGA TAGGATCG	12371
4161	AUCCUAAC A UCAGAACU	3623	AGTTCTGA GGCTAGCTACAACGA GTTAGGAT	12372
4167	ACAUCAGA A CUGGGGUA	3624	TACCCCAG GGCTAGCTACAACGA TCTGATGT	12373
4173	GAACUGGG G UAAGGACC	3625	GGTCCTTA GGCTAGCTACAACGA CCCAGTTC	12374
4179	GGGUAAGG A CCAUCACC	3626	GGTGATGG GGCTAGCTACAACGA CCTTACCC	12375
4182	UAAGGACC A UCACCACG	3627	CGTGGTGA GGCTAGCTACAACGA GGTCCTTA	12376
4185	GGACCAUC A CCACGGGC	3628	GCCCGTGG GGCTAGCTACAACGA GATGGTCC	12377
4188	CCAUCACC A CGGGCGCC	3629	GGCGCCCG GGCTAGCTACAACGA GGTGATGG	12378
4192	CACCACGG G CGCCCCCA	3630	TGGGGGCG GGCTAGCTACAACGA CCGTGGTG	12379
4194	CCACGGGC G CCCCCAUC	3631	GATGGGGG GGCTAGCTACAACGA GCCCGTGG	12380
4200	GCGCCCCC A UCACGUAC	3632	GTACGTGA GGCTAGCTACAACGA GGGGGCGC	12381
4203	CCCCCAUC A CGUACUCC	3633	GGAGTACG GGCTAGCTACAACGA GATGGGGG	12382
4205	CCCAUCAC G UACUCCAC	3634	GTGGAGTA GGCTAGCTACAACGA GTGATGGG	12383
4207	CAUCACGU A CUCCACCU	3635	AGGTGGAG GGCTAGCTACAACGA ACGTGATG	12384
4212	CGUACUCC A CCUAUGGC	3636	GCCATAGG GGCTAGCTACAACGA GGAGTACG	12385
4216	CUCCACCU A UGGCAAGU	3637	ACTTGCCA GGCTAGCTACAACGA AGGTGGAG	12386
4219	CACCUAUG G CAAGUUCC	3638	GGAACTTG GGCTAGCTACAACGA CATAGGTG	12387
4223	UAUGGCAA G UUCCUUGC	3639	GCAAGGAA GGCTAGCTACAACGA TTGCCATA	12388
4230	AGUUCCUU G CCGACGGU	3640	ACCGTCGG GGCTAGCTACAACGA AAGGAACT	12389
4234	CCUUGCCG A CGGUGGUU	3641	AACCACCG GGCTAGCTACAACGA CGGCAAGG	12390
4237	UGCCGACG G UGGUUGCU	3642	AGCAACCA GGCTAGCTACAACGA CGTCGGCA	12391
4240	CGACGGUG G UUGCUCUG	3643	CAGAGCAA GGCTAGCTACAACGA CACCGTCG	12392
4243	CGGUGGUU G CUCUGGGG	3644	CCCCAGAG GGCTAGCTACAACGA AACCACCG	12393
4252	CUCUGGGG G CGCCUAUG	3645	CATAGGCG GGCTAGCTACAACGA CCCCAGAG	12394
4254	CUGGGGC G CCUAUGAC	3646	GTCATAGG GGCTAGCTACAACGA GCCCCCAG	12395
4258	GGGCGCCU A UGACAUCA	3647	TGATGTCA GGCTAGCTACAACGA AGGCGCCC	12396
4261	CGCCUAUG A CAUCAUAA	3648	TTATGATG GGCTAGCTACAACGA CATAGGCG	12397
4263	CCUAUGAC A UCAUAAUG	3649	CATTATGA GGCTAGCTACAACGA GTCATAGG	12398
4000	AUGACAUC A UAAUGUGU	3650	ACACATTA GGCTAGCTACAACGA GATGTCAT	12399
4266				

4001	AUGAUAAU C UCUGAUGA	2652	TICATION ON COCCENCION CON ACCON ACCONDICATION	12401
4271	AUCAUAAU G UGUGAUGA CAUAAUGU G UGAUGAGU	3652 3653	TCATCACA GGCTAGCTACAACGA ATTATGAT ACTCATCA GGCTAGCTACAACGA ACATTATG	12401
4273				12402
4276	AAUGUGUG A UGAGUGCC	3654	GGCACTCA GGCTAGCTACAACGA CACACATT	12403
4280	UGUGAUGA G UGCCACUC	3655	GAGTGGCA GGCTAGCTACAACGA TCATCACA	12404
4282	UGAUGAGU G CCACUCAA	3656	TTGAGTGG GGCTAGCTACAACGA ACTCATCA	12405
4285	UGAGUGCC A CUCAAUUG	3657	CAATTGAG GGCTAGCTACAACGA GGCACTCA	12406
4290	GCCACUCA A UUGACUCG	3658	CGAGTCAA GGCTAGCTACAACGA TGAGTGGC	12407
4294	CUCAAUUG A CUCGACUU	3659	AAGTCGAG GGCTAGCTACAACGA CAATTGAG	12408
4299	UUGACUCG A CUUCCAUU	3660	AATGGAAG GGCTAGCTACAACGA CGAGTCAA	12409
4305	CGACUUCC A UUUUGGGC	3661	GCCCAAAA GGCTAGCTACAACGA GGAAGTCG	12410
4312	CAUUUUGG G CAUCGGCA	3662	TGCCGATG GGCTAGCTACAACGA CCAAAATG	12411
4314	UUUUGGGC A UCGGCACA	3663	TGTGCCGA GGCTAGCTACAACGA GCCCAAAA	12412
4318	GGGCAUCG G CACAGUCC	3664	GGACTGTG GGCTAGCTACAACGA CGATGCCC	12413
4320	GCAUCGGC A CAGUCCUG	3665	CAGGACTG GGCTAGCTACAACGA GCCGATGC	12414
4323	UCGGCACA G UCCUGGAC	3666	GTCCAGGA GGCTAGCTACAACGA TGTGCCGA	12415
4330	AGUCCUGG A CCAAGCGG	3667	CCGCTTGG GGCTAGCTACAACGA CCAGGACT	12416
4335	UGGACCAA G CGGAGACG	3668	CGTCTCCG GGCTAGCTACAACGA TTGGTCCA	12417
4341	AAGCGGAG A CGGCUGGA	3669	TCCAGCCG GGCTAGCTACAACGA CTCCGCTT	12418
4344	CGGAGACG G CUGGAGCG	3670	CGCTCCAG GGCTAGCTACAACGA CGTCTCCG	12419
4350	CGGCUGGA G CGCGGCUC	3671	GAGCCGCG GGCTAGCTACAACGA TCCAGCCG	12420
4352	GCUGGAGC G CGGCUCGU	3672	ACGAGCCG GGCTAGCTACAACGA GCTCCAGC	12421
4355	GGAGCGCG G CUCGUCGU	3673	ACGACGAG GGCTAGCTACAACGA CGCGCTCC	12422
4359	CGCGGCUC G UCGUGCUC	3674	GAGCACGA GGCTAGCTACAACGA GAGCCGCG	12423
4362	GGCUCGUC G UGCUCGCC	3675	GGCGAGCA GGCTAGCTACAACGA GACGAGCC	12424
4364	CUCGUCGU G CUCGCCAC	3676	GTGGCGAG GGCTAGCTACAACGA ACGACGAG	12425
4368	UCGUGCUC G CCACCGCU	3677	AGCGGTGG GGCTAGCTACAACGA GAGCACGA	12425
4371	UGCUCGCC A CCGCUACG	3678	CGTAGCGG GGCTAGCTACAACGA GGCGAGCA	12427
4374	UCGCCACC G CUACGCCU	3679	AGGCGTAG GGCTAGCTACAACGA GGCGAGCA	
4377	CCACCGCU A CGCCUCCG	3680	CGGAGGCG GGCTAGCTACAACGA GGTGGCGA	12428
4379	ACCGCUAC G CCUCCGGG	3681	CCCGGAGG GGCTAGCTACAACGA GCGGTGG	
				12430
4388	CCUCCGGG A UCGGUCAC	3682	GTGACCGA GGCTAGCTACAACGA CCCGGAGG	12431
4392	CGGGAUCG G UCACCGUG	3683	CACGGTGA GGCTAGCTACAACGA CGATCCCG	12432
4395	GAUCGGUC A CCGUGCCA	3684	TGGCACGG GGCTAGCTACAACGA GACCGATC	12433
4398	CGGUCACC G UGCCACAU	3685	ATGTGGCA GGCTAGCTACAACGA GGTGACCG	12434
4400	GUCACCGU G CCACAUCC	3686	GGATGTGG GGCTAGCTACAACGA ACGGTGAC	12435
4403	ACCGUGCC A CAUCCCAA	3687	TTGGGATG GGCTAGCTACAACGA GGCACGGT	12436
4405	CGUGCCAC A UCCCAACA	3688	TGTTGGGA GGCTAGCTACAACGA GTGGCACG	12437
4411	ACAUCCCA A CAUCGAGG	3689	CCTCGATG GGCTAGCTACAACGA TGGGATGT	12438
4413	AUCCCAAC A UCGAGGAG	3690	CTCCTCGA GGCTAGCTACAACGA GTTGGGAT	12439
4422	UCGAGGAG A UAGCCUUG	3691	CAAGGCTA GGCTAGCTACAACGA CTCCTCGA	12440
4425	AGGAGAUA G CCUUGUCC	3692	GGACAAGG GGCTAGCTACAACGA TATCTCCT	12441
4430	AUAGCCUU G UCCAACAC	3693	GTGTTGGA GGCTAGCTACAACGA AAGGCTAT	12442
4435	CUUGUCCA A CACCGGAG	3694	CTCCGGTG GGCTAGCTACAACGA TGGACAAG	12443
4437	UGUCCAAC A CCGGAGAG	3695	CTCTCCGG GGCTAGCTACAACGA GTTGGACA	12444
4446	CCGGAGAG A UCCCCUUC	3696	GAAGGGGA GGCTAGCTACAACGA CTCTCCGG	12445
4456	CCCCUUCU A UGGCAAAG	3697	CTTTGCCA GGCTAGCTACAACGA AGAAGGGG	12446
4459	CUUCUAUG G CAAAGCCA	3698	TGGCTTTG GGCTAGCTACAACGA CATAGAAG	12447
4464	AUGGCAAA G CCAUCCCC	3699	GGGGATGG GGCTAGCTACAACGA TTTGCCAT	12448
4467	GCAAAGCC A UCCCCAUC	3700	GATGGGGA GGCTAGCTACAACGA GGCTTTGC	12449
4473	CCAUCCCC A UCGAGACC	3701	GGTCTCGA GGCTAGCTACAACGA GGGGATGG	12450
4479	CCAUCGAG A CCAUCAAA	3702	TTTGATGG GGCTAGCTACAACGA CTCGATGG	12451
4482	UCGAGACC A UCAAAGGG	3703	CCCTTTGA GGCTAGCTACAACGA GGTCTCGA	12452
4496	GGGGGAG G CAUCUCAU	3704	ATGAGATG GGCTAGCTACAACGA CTCCCCCC	12453
4498	GGGGAGGC A UCUCAUCU	3705	AGATGAGA GGCTAGCTACAACGA GCCTCCCC	12454
4503	GGCAUCUC A UCUUCUGC	3706	GCAGAAGA GGCTAGCTACAACGA GAGATGCC	12455
4510	CAUCUUCU G CCAUUCCA	3707	TGGAATGG GGCTAGCTACAACGA AGAAGATG	12456
		1 - 5 . 5 .	TOTAL	12430

\$1516 ANABAGAR A 10 UGUACAGA 3708 TCTTGGARA GGCTAGCTACAGGA GTCAGAGA 12457 12458 12568 GARAGAAN G UGACGAGA 3710 GCTGGTCA GGCTAGCACAGGA TTCTCTCT 12459 12558 GARAGAAN G UGACGAGC 3711 GCTGGTCA GGCTAGCTACAGGA TTCTCTCT 12459 12559					
1528	4513	CUUCUGCC A UUCCAAGA	3708	TCTTGGAA GGCTAGCTACAACGA GGCAGAAG	12457
1551	4526	AAGAAGAA A UGUGACGA	3709	TCGTCACA GGCTAGCTACAACGA TTCTTCTT	12458
1535	4528	GAAGAAAU G UGACGAGC	3710	GCTCGTCA GGCTAGCTACAACGA ATTTCTTC	12459
4519	4531	GAAAUGUG A CGAGCUCG	3711	CGAGCTCG GGCTAGCTACAACGA CACATTTC	12460
4542 AGCUCGCU G CANAGCUG 3714 CAGCTTTG GGCTAGCTACACGA AGCGAGCT 12463 4547 GCUGCAAA G CUGUCGGG 3715 CCCGACAG GGCTAGCTACAACGA TTTGCAGC 12465 4555 GCUGCAGG G COGAGGC 3716 AGGCCCGA GGCTAGCTACAACGA AGCTTTGC 12465 4555 GCUGUGGG G CUUGAGCC 3717 GTCCGAGG GGCTAGCTACAACGA CGACAGC 12466 4556 GGCCUGGA G CUUAACCC 3718 GCGTAGG GGCTAGCTACAACGA CGACAGC 12466 4557 CGGACUUA A CGUUGACC 3719 CTACAGCG GGCTAGCTACAACGA CGACAGC 12467 4567 CGGACUUA A CGCUGUAG 3719 CTACAGCG GGCTAGCTACAACGA TAAGTCC 12468 4559 GACUUAACC G CUGUAGGG 3720 GGCTACAG GGCTAGCTACAACGA TAAGTCC 12468 4559 GACUUAAC G CUGUAGGG 3721 ATAGCCC GGCTAGCTACAACGA TAAGTCC 12468 4572 UUAACCGU G UUAUACCG 3721 TAAGCCT GGCTAGCTACAACGA AGCGTTAA TACAGCT 12472 4575 AGCUUGA G CUGUAUCC 3722 GTAATACG GGCTAGCTACAACGA ACCGTACA 12472 4577 AGCUUGAC G CUGUACC 3723 CGCGATAT GGCTAGCTACAACGA ACCGATACA 12473 4579 UUGUAGCGU A UUACCGG 3724 CCCGGTAA GGCTAGCTACAACGA ACCGATACA 12473 4588 UUACCGGG G UUCUGAC 3725 GACCCCGG GGCTAGCTACAACGA ACCGATACA 12474 4588 UUACCGGG G UUCUGAC 3727 CGGACACG GGCTAGCTACAACGA ACCGATACA 12475 4594 GGGUCUCG A CGUGUCGU 3729 ATGACCGG GGCTAGCTACAACGA ACCGATACA 12475 4594 GGGUCUCG A CGUGUCCG 3727 CGGACAC GGCTAGCTACAACGA CGAGACC 12476 4598 CUCGACC G UUCUGAC G 3727 CGGACAC GGCTAGCTACAACGA CGGACC 12476 4598 CUCGACC G UUCUGAC G 3728 GACGGACA GGCTAGCTACAACGA CGGACC 12476 4605 UUCUGAC G UCCGUCCU 3729 ATGACCGG GGCTAGCTACAACGA CGGACC 12476 4605 UUCUGAC G UCCGUCAC 3729 ATGACCGG GGCTAGCTACAACGA CGGACC 12476 4605 UUCUGAC G UCCGUCAC 3731 GCGCGGG GGCTAGCTACAACGA CGGCTAGCTACAACGA 4605 UUCUGAC G UCCGUCAC 3731 GCGCGGG GGCTAGCTACAACGA CGGCCGA 12486 4605 UUCUGAC G UCCGUCAC 3731 GCGCGGG GGCTAGCTACAACGA CGGCCGG 12486 4605 ACGGGCG G CGGGGGG GCTAGCTACAACGA CGGCACA 12480 4605 ACGGGCG G CGGGGAGCGC GCCGAGCTACCAACGA CGGCACA 12480 4605 ACGGGCG G CGGGGAGC	4535	UGUGACGA G CUCGCUGC	3712	GCAGCGAG GGCTAGCTACAACGA TCGTCACA	12461
1547	4539	ACGAGCUC G CUGCAAAG	3713	CTTTGCAG GGCTAGCTACAACGA GAGCTCGT	12462
4555 GCABAGU 6 UGGGGCU 3716 AGGCCGCA GCTAGCTACAACGA ACCTTCC 4555 GCUGUGGG C CUUGACGC 3717 GTCCGAGG GGCTAGCTACAACGA CCGACAGC 4567 GGCCUCGG A CUUAACGC 3719 GCCGAGG GGCTAGCTACAACGA CCGACAGC 12467 4567 CGGACUUA A CGCUGUAG 3719 CTACAGCG GGCTAGCTACAACGA CCGACAGC 12467 4567 CGGACUUA A CGCUGUAG 3719 CTACAGCG GGCTAGCTACAACGA TAATCCCC 4567 CGGACUUA A CGCUGUAGC 3720 CGCTAGCT GGCTAGCTACAACGA GTAATCTCC 12467 4569 GACUUAACG CUGUAGCG 3720 CGCTAGCT GGCTAGCTACAACGA GTAATCTCC 12467 4577 CGUUAACGC UAGCCGUAU 3721 ATACGCTA GGCTAGCTACAACGA AGCGTTAA 12470 4575 ACCCUGUA G CGUAUUAC 3722 GTAATACG GGCTAGCTACAACGA AGCGTTAA 12470 4576 ACCCUGUA G CGUAUUAC 3722 GTAATACG GGCTAGCTACAACGA AGCGTTAA 12470 4577 CGUUAACGC UAUUACCGG 3723 CGGTAATA GGCTAGCTACAACGA AGCGTACA 12473 4579 UGUAGCGU A UUACCGGG 3723 CGGTAATA GGCTAGCTACAACGA ACTACGCT 12473 4589 UUACCGGG U CUUCGACG 3725 GACCCCGG GGCTAGCTACAACGA ACTACGCT 12474 4588 UUACCGGG U CUUCGACG 3727 CGGACACG GGCTAGCTACAACGA ACTACGCT 12474 4594 GGGUCUGC A CGUGUCCG 3727 CGGACACG GGCTAGCTACAACGA ACTACGCT 12476 4595 GUCUCGAC G UUCCGUCCU 3728 GACCGCGG GGCTAGCTACAACGA CCCGGTAA 12476 4596 CUCGACGG U UCCUCCU 3728 GACGGAC GGCTAGCTACAACGA CCCAGGACCC 12476 4598 CUCGACGG U UCCUCCU 3728 GACGGAC GGCTAGCTACAACGA CCCAGGACCC 12476 4602 ACGUGUCGC G UCCUCCU 3728 GACGGAC GGCTAGCTACAACGA CGCAGACCC 12476 4602 ACGUGUCGC G UCCUCCU 3728 GACGGAC GGCTAGCTACAACGA CGCAGACCC 12476 4602 ACGUGUCGC G UCCUCCU 3728 GACGGAC GGCTAGCTACAACGA CGCAGACCC 12476 4604 ACGUGUAC G UCCUCCU 3728 GACGGAC GGCTAGCTACAACGA CGCAGACCC 12476 4605 UGUCGGCU A UCCCGCCC 3731 GGCCCGCTA GGCTACAACGA GGCACCC 12476 4607 UCCGUCAU A CCGGCCCA 3732 CTGGCCGG GGCTAGCTACAACGA CGCACGAC 12480 4607 UCCGUCAU A CCGGCCCA 3732 CTGGCCGG GGCTAGCTACAACGA CGCACCAC 12480 4607 UCCGUCAU A CCGGCCCA 3732 CTGGCCGG GGCTAGCTACAACGA CGCCCGCT 12480 4611 UCAUACCC G CCACCGG 3733 CCCCCGG GGCTAGCTACAACGA CGCCCCCCT 12480 4612 ACGUGUAC A UCCGUCUU 3736 CACCACA GGCTAGCTACAACGA CGCTACCTACAACGA CCCCCGCT 12481 4613 UCCGCCCA A CGCGCGC 3733 TCCCCCG GGCTAGCTACAACGA CGCTACCTACAACGA CCGCCCCC 12481 4623 ACCGGCCA	4542	AGCUCGCU G CAAAGCUG	3714	CAGCTTTG GGCTAGCTACAACGA AGCGAGCT	12463
4555 GCUGUCGG G CCUCGGAC 3717 GTCCGAGG GGCTAGCTACAACGA CCGAGACGC 12466 4562 GGCCUCGG A CUURACGC 3718 GCGTAGAG GGCTACATACAACGA CCGAGGCC 12467 4567 CGGACUURA A CGCUGURG 3719 CTACAGCG GGCTACATACAACGA GTAGATCC 12468 4569 GACUURAC G CUGURGG 3710 CTACAGCG GGCTACATACAACGA GTAAGTCC 12468 4569 GACUURAC G CUGURGCG 3720 CGCTACGA GGCTACATACAACGA GTTAAGTC 12469 4572 UURACGGU G URGCGURU 3721 ATACGCTA GGCTACATACAACGA GTTAAGTC 12470 4575 ACGCUGURG G GGUAUURC 3722 GTAATACG GGCTACATACAACGA TACAGCGT 12471 4577 GCUGURGCG UURUACCCG 3723 CGGTAATA GGCTACATACAACGA TACAGCGT 12471 4579 UURACGGG UURUACCCG 3723 CGGTAATA GGCTACATACAACGA CGCTACACAC 12473 4582 AGCGURU A CCGGGGUC 3725 GACCCCGG GGCTAGCTACAACGA ACCTACAC 12474 4588 UURACGGGG G UURACACGG 3726 CGTCAGAG AGCTACACACAA AATACGCT 12474 4584 GGGUCUCG A GUGUCCG 3728 GACCCGG GGCTAGCTACAACGA ACCTACA 12474 4589 UURACGGGG UURUCAACG 3728 GACCGGAC GGCTAGCTACAACGA ACCTACA 12474 4594 GGCUCUGA A GUGUCCG 3728 GACCGGG GGCTAGCTACAACGA CGCACAC 12474 4595 GUCUCAAC G UUCUCAACG 3728 GACCGGAC GGCTAGCTACAACGA CGCACACC 12476 4596 GUCUCAAC G UURUCCGUC 3728 ATGACGGA GGCTAGCTACAACGA CGCACACC 12476 4602 ACGUGUCC A UACCGGCC 3731 GGCCGGTA GGCTAGCTACAACGA GGACCACC 12476 4602 ACGUGUCC A UACCGGCC 3731 GGCCGGTA GGCTAGCTACAACGA GGACCACC 12476 4607 UCCGUCAU A CCGGCCG 3731 GGCCGGTA GGCTAGCTACAACGA GGACCGAC 12481 4611 UCAUACCG G CCACGCGG 3732 CCCCCTG GGCTAGCTACAACGA GGACCGAC 12481 4611 UCAUACCG G CCACGCG 3731 GCCCCCTG GGCTAGCTACAACGA CGGCCC 12486 4626 ACGCGCC GUGUUCG 3733 CCCCCCTG GGCTAGCTACAACGA CGGCCC 12486 4621 ACGCGCCA G GGGGACC 3731 GCCCCCTG GGCTAGCTACAACGA TGCCCGC 12481 4621 ACCGGCCA G GGGGACC 3731 GCCCCCTG GGCTAGCTACAACGA CGCCCCCTG 12484 4622 ACGUGUUC G UCGUCCU 3735 CACGACA GGCTAGCTACAACGA CGCCCCCTG 12484 4623 ACGUGUUC G UCGUCAU 3735 CACGACA GGCTAGCTACAACGA CGCCCCCTG 12486 4626 ACGACACAC ACGACACA 3730 CCCCCTG GGCTAGCTACAACGA CGCCCCCTG 12486 4626 GGGACGUC G UUGUCGUG 3735 CACGACGA GGCTAGCTACAACGA CACCACACA 12489 4631 UCGUGGCA A CAGCACC 3741 AGCCGGC GGCTAGCTACAACGA CACCACAC 12486 4626 ACGUCUAU A UACCGGCC 3741 AGCCGGC	4547	GCUGCAAA G CUGUCGGG	3715	CCCGACAG GGCTAGCTACAACGA TTTGCAGC	12464
4562 GGCCUCGG A CUUANCGC 3718 GCCTTANG GGCTACATACACGA CCGAGGCC 12467 4567 CGACUURA A GGCUGUAG 3719 CTACAGCG GGCTACATACACGA TAAGTCCG 12467 4569 GACUURA CUGUGACG 3719 CTACAGCG GGCTACATCACAGA TAAGTCCG 12469 4572 UUANCGCU G UNGCGURU 3721 ATAGGCTA GGCTACATCACAGA ATAGTCCG 12469 4572 UUANCGCU G UNGCGURU 3721 ATAGGCTA GGCTACATCAACGA ACGTTACA 4577 ACCUGUA C CURUNUC 3722 GTAATACG GGCTACATCAACGA ACGTTACA 4577 ACCUGUA C CURUNUC 3722 GTAATACG GGCTACATCAACGA ACGTTACA 4579 UGUACGCU I UUACCGGG 3724 CCCGGTAA GGCTACATCAACGA ACGCTAC 4579 UGUACGCU I UUACCGGG 3724 CCCGGTAA GGCTACATCAACGA CACAGCA 12472 4597 UGUACGGU I UUACCGGG 3724 CCCGGTAA GGCTACATCAACGA ACGTACCT 12474 4582 AGCGUAUU A CCGGGCUC 3725 GACCCGG GGCTACATACAGA ATACAGCT 12474 4588 UUACCGGG G UCUGACG 3726 CCTCGAGA GGCTACATCAACGA ACGCACT 12474 4589 GGUCUCG A CGUGUCCG 3727 CGGACACG GGCTAGCTACAACGA CGGACCC 12475 4594 GGGUCUCG A CGUGUCCG 3728 GACCGGACC GGCTACATCAACGA CGGACCC 12476 4596 CUCGACGU G UCCGUCCU 3729 ATGACGGA GGCTACATCAACGA CGGACCC 12477 4598 CUCGACGU G UCCGUCCU 3729 ATGACGGA GGCTACATCAACGA ACTCGAG 12477 4602 ACGUGUCC A UACCGGC 3731 GGCCGGTA GGCTACAACGA GACCAGAC 12479 4607 UCCGUCAU A CCGGCC 3731 GGCCGGTA GGCTACAACGA GACCGAG 12479 4607 UCCGUCAU A CCGGCCC 3731 GGCCGGTA GGCTACAACGA GACCGAG 12479 4607 UCCGUCAU A CCGGCCC 3731 GGCCGGTA GGCTACAACGA GACCAGAC 12480 4611 UCAUACCG CCCAGCGG 3732 CCCGCTG GGCTACAACGA GACCAGAC 12480 4611 UCAUACCG CCCAGCGG 3733 CCCCCGTG GGCTACAACGA GACCACACA 12480 4621 ACGGCCA G CGGGACAC 3733 CCCCCGTG GGCTACAACGA GACCACACA 12480 4621 ACGGCCA G CGGGACAC 3733 CCCCCGTG GGCTACAACACAA GACGACAC ACGACAA 4621 ACGGCCA G CGGGACAC 3733 CCCCCGTG GGCTACAACACAA GACGACAC 12481 4621 ACGGCCA G CGGGACAC 3733 CCCCCGTG GCTACAACACAA GACTACACAA GACCACAA GACCACAA GACCACAA GACCAAA GACCAACAA GACCACAA GACCAACAA GACCACAA ACGACACAA GACCACAA GACCACAA GACCACAA GACCACAA GACCACAA GACCACA	4550	GCAAAGCU G UCGGGCCU	3716	AGGCCCGA GGCTAGCTACAACGA AGCTTTGC	12465
4565	4555	GCUGUCGG G CCUCGGAC	3717	GTCCGAGG GGCTAGCTACAACGA CCGACAGC	12466
4565	4562	GGCCUCGG A CUUAACGC	3718	GCGTTAAG GGCTAGCTACAACGA CCGAGGCC	12467
4569			3719	<u> </u>	
4572	4569	GACUUAAC G CUGUAGCG	3720	CGCTACAG GGCTAGCTACAACGA GTTAAGTC	
4575 ACGUGUA G CGUAUUACC 3722 GTAATACG GGCTAGCTACAACGA TACAGCGT 12471 1277 GCUGUAGC G UAUUACCG 3723 COGGTAATA GGCTAGCTACAACGA GCTACACC 12472 12473 12474 124	\vdash	UUAACGCU G UAGCGUAU	3721		
4577 GCUGUAGC G UAUUACCG 3723 COGTAATA GCTAGCTACAACGA GCTACAGC 12472 4579 UGUAGCGU A UUACCGGG 3724 CCCGGTAA GGTAGCTACAACGA ACGTACA 12473 4582 AGCGUAUU A CCGGGGUC 3725 GACCCGG GGCTAGCTACAACGA ATAGCGT 12474 4588 UUACCGGG G UCUCGACG 3726 CGTCGAGA GGCTAGCTACAACGA ACGAGCACC 12476 4594 GGUCUCGA C UGUCCGU 3728 GACGGACA GGCTAGCTACAACGA CAGGACC 12477 4598 CUCGACGU G UCCGUCCU 3728 GACGGACA GGCTAGCTACAACGA CAGGACC 12478 4602 AGGUGUCC G UCCGUCAU 3729 ATGACGGA GGCTAGCTACAACGA ACGTAGCTACAACGA 12478 4605 UCGUCGUC A UACCGGC 3730 CGGTAGCTACAACGA GACGACA 12480 4607 UCCGUCAU A CCGGCCAG 3732 CTGGCCGG GGCTAGCTACAACGA GACGGACA 12481 4611 UCAUACCG G CCACCGGG 3733 CCCCCTGG GGCTAGCTACAACGA GACGCGGT 12481 4621 CAGCGGGG A CGUUGUG 3735 CACCGACA GGCTAGCTACAACGA GACGCCGT 12484 4621 CAGCGGGGA C GUGGGA 3734 CCTCCCGG GGCTAGCTACAACGA GACGCCC					
4579 UGUAGCGU A UUACCGGG 3724 CCCGGTAA GGCTAGCTACAACGA ACGCTACA 12473 4582 AGCGUAUU A CCGGGGUC 3725 GACCCCGG GGCTAGCTACAACGA AATAGGCT 12474 4588 UUACCGGG G UCUCGACG 3726 CGTGGAAGA GGCTAGCTACAACGA CCGGTAA 12475 4594 GGGUCUCG A CGUCCGC 3727 CGGACACG GGCTAGCTACAACGA CGAGACC 12476 4596 GUCUCGAC G UCCUCGUC 3728 GACGGACA GGCTAGCTACAACGA CGGAGAC 12477 4698 CUCGACGU G UCCUCAU 3729 ATGACGGA GGCTAGCTACAACGA ACGTCAGA 12478 4602 ACGUGUCC G UCAUACCG 3730 CGGTATGA GGCTAGCTACAACGA ACGGACA 12479 4605 UGUCCGUCA UCACCGCC 3731 GGCGGGTA GGCTAGCTACAACGA ATGACGACA 12480 4607 UCCGUCAU A CCGGCCAG 3733 CCCGCTGG GGCTAGCTACAACGA TGGCCGGT 12481 4611 UCAUACCG CCACCGGGG 3733 CCCCCTGG GGCTAGCTACAACGA TGGCCGGT 12483 4621 CACGGGGA C CUCGUUGC 3734 CCTCCCGG GGCTAGCTACAACGA TGGCCGGT 12481 4622 AGCGGGGA C CUCGUUGC 3735 CAACGACA GGCTAGCT					
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4713 CCCAAACA G UCGACUUC 3763 GAAGTCGA GGCTAGCTACAACGA TGTTTGGG 12512					12511
	4713	CCCAAACA G UCGACUUC	3763	GAAGTCGA GGCTAGCTACAACGA TGTTTGGG	12512

4212	ANCAGUGG A GUTUARGU	2764	ACOMON AC COCCON COM ACAN CON CONCOCCO	12512
4717	AACAGUCG A CUUCAGCU	3764 3765	AGCTGAAG GGCTAGCTACAACGA CGACTGTT GGTCCAAG GGCTAGCTACAACGA TGAAGTCG	12513
4723	CGACUUCA G CUUGGACC	ļ		
4729	CAGCUUGG A CCCUACCU	3766	AGGTAGGG GGCTAGCTACAACGA CCAAGCTG	12515
4734	UGGACCCU A CCUUCACC	3767	GGTGAAGG GGCTAGCTACAACGA AGGGTCCA	12516
4740	CUACCUUC A CCAUUGAG	3768	CTCAATGG GGCTAGCTACAACGA GAAGGTAG	12517
4743	CCUUCACC A UUGAGACG	3769	CGTCTCAA GGCTAGCTACAACGA GGTGAAGG	12518
4749	CCAUUGAG A CGACGACC	3770	GGTCGTCG GGCTAGCTACAACGA CTCAATGG	12519
4752	UUGAGACG A CGACCGUG	3771	CACGGTCG GGCTAGCTACAACGA CGTCTCAA	12520
4755	AGACGACG A CCGUGCCC	3772	GGGCACGG GGCTAGCTACAACGA CGTCGTCT	12521
4758	CGACGACC G UGCCCCAA	3773	TTGGGGCA GGCTAGCTACAACGA GGTCGTCG	12522
4760	ACGACCGU G CCCCAAGA	3774	TCTTGGGG GGCTAGCTACAACGA ACGGTCGT	12523
4768	GCCCCAAG A CGCAGUGU	3775	ACACTGCG GGCTAGCTACAACGA CTTGGGGC	12524
4770	CCCAAGAC G CAGUGUCC	3776	GGACACTG GGCTAGCTACAACGA GTCTTGGG	12525
4773	AAGACGCA G UGUCCCGC	3777	GCGGGACA GGCTAGCTACAACGA TGCGTCTT	12526
4775	GACGCAGU G UCCCGCUC	3778	GAGCGGGA GGCTAGCTACAACGA ACTGCGTC	12527
4780	AGUGUCCC G CUCGCAGA	3779	TCTGCGAG GGCTAGCTACAACGA GGGACACT	12528
4784	UCCCGCUC G CAGAGGCG	3780	CGCCTCTG GGCTAGCTACAACGA GAGCGGGA	12529
4790	UCGCAGAG G CGAGGUAG	3781	CTACCTCG GGCTAGCTACAACGA CTCTGCGA	12530
4795	GAGGCGAG G UAGGACCG	3782	CGGTCCTA GGCTAGCTACAACGA CTCGCCTC	12531
4800	GAGGUAGG A CCGGUAGG	3783	CCTACCGG GGCTAGCTACAACGA CCTACCTC	12532
4804	UAGGACCG G UAGGGGCA	3784	TGCCCCTA GGCTAGCTACAACGA CGGTCCTA	12533
4810	CGGUAGGG G CAGGAGAG	3785	CTCTCCTG GGCTAGCTACAACGA CCCTACCG	12534
4819	CAGGAGAG G CAUAUACA	3786	TGTATATG GGCTAGCTACAACGA CTCTCCTG	12535
4821	GGAGAGGC A UAUACAGG	3787	CCTGTATA GGCTAGCTACAACGA GCCTCTCC	12536
4823	AGAGGCAU A UACAGGUU	3788	AACCTGTA GGCTAGCTACAACGA ATGCCTCT	12537
4825	AGGCAUAU A CAGGUUUG	3789	CAAACCTG GGCTAGCTACAACGA ATATGCCT	12538
4829	AUAUACAG G UUUGUGAC	3790	GTCACAAA GGCTAGCTACAACGA CTGTATAT	12539
4833	ACAGGUUU G UGACUCCA	3791	TGGAGTCA GGCTAGCTACAACGA AAACCTGT	12540
4836	GGUUUGUG A CUCCAGGA	3792	TCCTGGAG GGCTAGCTACAACGA CACAAACC	12541
4847	CCAGGAGA G CGGCCUUC	3793	GAAGGCCG GGCTAGCTACAACGA TCTCCTGG	12541
4850	GGAGAGC G CCUUCGGG	3794		
			CCCGAAGG GGCTAGCTACAACGA CGCTCTCC	12543
4858	GCCUUCGG G CAUGUUCG	3795	CGAACATG GGCTAGCTACAACGA CCGAAGGC	12544
4860	CUUCGGGC A UGUUCGAC	3796	GTCGAACA GGCTAGCTACAACGA GCCCGAAG	12545
4862	UCGGGCAU G UUCGACUC	3797	GAGTCGAA GGCTAGCTACAACGA ATGCCCGA	12546
4867	CAUGUUCG A CUCCUCGG	3798	CCGAGGAG GGCTAGCTACAACGA CGAACATG	12547
4875	ACUCCUCG G UCCUGUGU	3799	ACACAGGA GGCTAGCTACAACGA CGAGGAGT	12548
4880	UCGGUCCU G UGUGAGUG	3800	CACTCACA GGCTAGCTACAACGA AGGACCGA	12549
4882	GGUCCUGU G UGAGUGCU	3801	AGCACTCA GGCTAGCTACAACGA ACAGGACC	12550
4886	CUGUGUGA G UGCUAUGA	3802	TCATAGCA GGCTAGCTACAACGA TCACACAG	12551
4888	GUGUGAGU G CUAUGACG	3803	CGTCATAG GGCTAGCTACAACGA ACTCACAC	12552
4891	UGAGUGCU A UGACGCGG	3804	CCGCGTCA GGCTAGCTACAACGA AGCACTCA	12553
4894	GUGCUAUG A CGCGGGAU	3805	ATCCCGCG GGCTAGCTACAACGA CATAGCAC	12554
4896	GCUAUGAC G CGGGAUGU	3806	ACATCCCG GGCTAGCTACAACGA GTCATAGC	12555
4901	GACGCGGG A UGUGCUUG	3807	CAAGCACA GGCTAGCTACAACGA CCCGCGTC	12556
4903	CGCGGGAU G UGCUUGGU	3808	ACCAAGCA GGCTAGCTACAACGA ATCCCGCG	12557
4905	CGGGAUGU G CUUGGUAC	3809	GTACCAAG GGCTAGCTACAACGA ACATCCCG	12558
4910	UGUGCUUG G UACGAGCU	3810	AGCTCGTA GGCTAGCTACAACGA CAAGCACA	12559
4912	UGCUUGGU A CGAGCUCA	3811	TGAGCTCG GGCTAGCTACAACGA ACCAAGCA	12560
4916	UGGUACGA G CUCACGCC	3812	GGCGTGAG GGCTAGCTACAACGA TCGTACCA	12561
4920	ACGAGCUC A CGCCCGCC	3813	GGCGGGCG GGCTAGCTACAACGA GAGCTCGT	12562
4922	GAGCUCAC G CCCGCCGA	3814	TCGGCGGG GGCTAGCTACAACGA GTGAGCTC	12563
4926	UCACGCCC G CCGAGACC	3815	GGTCTCGG GGCTAGCTACAACGA GGGCGTGA	12564
4932	CCGCCGAG A CCUCCGUU	3816	AACGGAGG GGCTAGCTACAACGA CTCGGCGG	12565
4938	AGACCUCC G UUAGGUUG	3817	CAACCTAA GGCTAGCTACAACGA GGAGGTCT	12566
4943	UCCGUUAG G UUGCGGGC	3818	GCCCGCAA GGCTAGCTACAACGA CTAACGGA	12567
4946	GUUAGGUU G CGGGCUUA	3819	TAAGCCCG GGCTAGCTACAACGA AACCTAAC	12568
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9594 GCGGGCTU A CCUAADUA 3821 TATTTAGG GGCTAGCTACAACGA AAGCCCGC 12570	4950	GGUUGCGG G CUUACCUA	3820	TAGGTAAG GGCTAGCTACAACGA CCGCAACC	12569
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4952 ACCURANU A CACAGGUU 3824 AACCCTGG GGCTAGCTACAGCA ATTAGGT 12572 4964 CUAAAUAC A CAGGGUU 3825 AACCCTGG GGCTAGCTACAACGA CTTATTT G 12573 4970 ACACCAGG GUTGCCCUU 3825 AAGGGCA GGCTAGCTACAACGA CCTGGTCTT 12574 4981 GCCCUUCU G CAGGACC 3826 CAGAAGGG GGCTAGCTACAACGA ACGACGA CTGGCCAG 12576 4981 GCCCUUCU G CAGGACC 3828 CCAGATGG GGCTAGCTACAACGA AGAGGGC 12576 4987 CUGCCAGG A CCAUCUGG 3828 CCAGATGG GGCTAGCTACAACGA CCTGCCCAG 12576 4997 CAUCUGGA GUUCUCA 3831 TSAAACAG GGCTAGCTACACGA CCTCCCCA 12580 5010 GGGAGGG G UGUCUCA 3831 TSAAACAGA GGCTAGCTACACGA ACCCTCCC 12580 5016 GUGGAGGG G UCUCACA 3833 AGGCCTG GGCTAGCTACACAG ACCCTCCC 12581 5020 CUCACCAC ACCACAUA 3835 TATGTGG GGCTAGCTACACAG ACCCTCCC 12581 5021 CUCACCCA AUGAGCC 3833 AGGCTCT GGCTAGCTACACAGA GGGGCTG 12584 5025 CAGGCCUC ACCACAUA 3835					
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5100 CAUACCAA G CCACAGUG 3851 CACTGTGG GGCTAGCTACAACGA TTGGTATG 12600 5103 ACCAAGCC A CAGUGUGC 3852 GCACACTG GGCTAGCTACAACGA GGCTTGGT 12601 5106 AAGCCACA GUGUGCCC 3853 GGCGCACA GGCTAGCTACAACGA ACTGTGGC 12602 5108 GCCACAGU GUGCCCAG 3854 CTGGCGCA GGCTAGCTACAACGA ACTGTGGC 12603 5110 CACAGUGU GCCCAGGG 3855 CCCTGGG GGCTAGCTACAACGA ACACTGTG 12604 5112 CAGUGUG CCAGGGCU 3856 AGCCTGG GGCTAGCTACAACGA ACACTGT 12605 5118 GCGCCAGG CUCCACCC 3858 GGGTGGG GGCTAGCTACAACGA CCTGGCGC 12606 5124 GGGCUCA GCUCACCC 3858 GGGTGGGG GGCTAGCTACAACGA CTGAGCCC 12607 5129 CAGGCUCC A CCCCCAUC 3859 GATGGGG GGCTAGCTACAACGA GTGAGCTACAACGA GAGGGGGG 12609 <t< td=""><td>5093</td><td>CUGGUAGC A UACCAAGC</td><td>3849</td><td>GCTTGGTA GGCTAGCTACAACGA GCTACCAG</td><td>12598</td></t<>	5093	CUGGUAGC A UACCAAGC	3849	GCTTGGTA GGCTAGCTACAACGA GCTACCAG	12598
5103 ACCAAGCC A CAGUGUGC 3852 GCACACTG GGCTAGCTACAACGA GGCTTGGT 12601 5106 AAGCCACA G UGUGCGCC 3853 GGCGCACA GGCTAGCTACAACGA TGTGGCTT 12602 5108 GCCACAGU G UGCGCCAG 3854 CTGGCGCA GGCTAGCTACAACGA ACTGTGG 12603 5110 CACAGUGU G CGCCAGGG 3855 CCCTGGCG GGCTAGCTACAACGA ACACTGT 12604 5112 CAGUGUGC G CCAGGGCU 3856 AGCCCTGG GGCTAGCTACAACGA CCACCTG 12605 5118 GCGCCAGG G CUCAGGCU 3857 AGCCTGAG GGCTAGCTACAACGA CTGAGCCC 12606 5124 GGGCUCAG G CUCCACCC 3858 GGGTGGGGG GGCTAGCTACAACGA GGAGCCTG 12607 5129 CAGGCUCC A CCCCCAUC 3859 GATGGGG GGCTAGCTACAACGA GGAGCCTG 12608 5135 CCACCCCC A UCGUGGGA 3860 TCCACAGA GGCTAGCTACAACGA GAGGGTGG 12608 5138 CCCCCAUC G UGGGAUCA 3861 TGATCCCA GGCTAGCTACAACGA GTGGGGG 12610 5143 AUCGUGGG A UCAAAUGU 3862 ACATTTGA GGCTACAACGA CCCACGAT 12611 5148 GGGAUCAA A UGUGAAGU 3864 CACTTCCA GGCTACAACGA ATTGATCCC	5095	GGUAGCAU A CCAAGCCA	3850	TGGCTTGG GGCTAGCTACAACGA ATGCTACC	12599
5106 AAGCCACA G UGUGCGCC 3853 GGCGCACA GGCTAGCTACAACGA TGTGGCTT 12602 5108 GCCACAGU G UGCGCAG 3854 CTGGCGA GGCTAGCTACAACGA ACTGTGGC 12603 5110 CACAGUGU G CGCCAGGG 3855 CCCTGGCG GGCTAGCTACAACGA ACACTGTG 12604 5112 CAGUGUGC G CCAGGGCU 3856 AGCCCTGG GGCTAGCTACAACGA GCACACTG 12605 5118 GCGCCAGG G CUCCACCC 3858 GGGTGGAG GGCTAGCTACAACGA CCTGGCGC 12606 5124 GGGCUCAG G CUCCACCC 3858 GGGTGGGG GGCTAGCTACAACGA GGAGCCC 12607 5129 CAGGCUCC A CCCCCAUC 3859 GATGGGGG GCTAGCTACAACGA GGAGCCTG 12608 5135 CCACCCCC A UCGUGGGA 3860 TCCCACAG GGCTAGCTACAACGA GGGGTGG 12609 5138 CCCCCAUC G UGGGAUCA 3861 TGATCCCA GGCTAGCTACAACGA GGGGGGG 12610 5143 AUCGUGGG A UCAAAUGU 3862 ACATTTGA GGCTAGCAACGA CCCACGAT 12611 5148 GGGAUCAA A UGUGGAAG 3863 CTTCCACA GGCTAGCAACGA ATTGATC 12612 5150 GAUCAAAU G UGGAAGUG 3864 CACTTCCA GGCTACAACGA ATTGATCA	5100	CAUACCAA G CCACAGUG	3851	CACTGTGG GGCTAGCTACAACGA TTGGTATG	12600
5108 GCCACAGU G UGCGCCAG 3854 CTGGCGCA GGCTAGCTACAACGA ACTGTGGC 12603 5110 CACAGUGU G CGCCAGGG 3855 CCCTGGCG GGCTAGCTACAACGA ACACTGTG 12604 5112 CAGUGUGC G CCAGGGCU 3856 AGCCCTGG GGCTAGCTACAACGA GCACACTG 12605 5118 GCGCCAGG G CUCAGGCU 3857 AGCCTGAG GGCTAGCTACAACGA CCTGAGCCC 12606 5124 GGGCUCAG G CUCCACCC 3858 GGGTGGAG GGCTAGCTACAACGA GGAGCCTG 12607 5129 CAGGCUCC A CCCCCAUC 3859 GATGGGGG GGCTAGCTACAACGA GGAGCCTG 12608 5135 CCACCCCC A UCGUGGA 3860 TCCCACGA GGCTAGCTACAACGA GGGGGGG 12609 5138 CCCCCAUC G UGGGAUCA 3861 TGATCCCA GGCTAGCTACAACGA GGGGGGG 12610 5143 AUCGUGGG A UCAAAUGU 3862 ACATTTGA GGCTAGCTACAACGA CCCACGAT 12611 5148 GGGAUCAA A UGGAGGG 3863 CTTCCACA GGCTAGCTACAACGA ATTTGATCC 12612 5150 GAUCAACG UGGAAGUG 3864 CACTTCCA GGCTAGCTACAACGA ATTTCCACC 12613 5158 GUGGAGGU 3866 GTGTGAGCA GGCTAGCTACAACGA	5103	ACCAAGCC A CAGUGUGC	3852	GCACACTG GGCTAGCTACAACGA GGCTTGGT	12601
5110 CACAGUGU G CGCCAGGG 3855 CCCTGGCG GGCTAGCTACAACGA ACACTGTG 12604 5112 CAGUGUGC G CCAGGGCU 3856 AGCCCTGG GGCTAGCTACAACGA GCACACTG 12605 5118 GCGCCAGG G CUCAGCCU 3857 AGCCTGAG GGCTAGCTACAACGA CCTGGCGC 12606 5124 GGGCUCAG G CUCCACCC 3858 GGGTGGAG GGCTAGCTACAACGA CTGAGCCC 12607 5129 CAGGCUCC A CCCCCAUC 3859 GATGGGGG GGCTAGCTACAACGA GGAGCCTG 12608 5135 CCACCCCC A UCGUGGA 3860 TCCCACGA GGCTAGCTACAACGA GGGGGGG 12609 5138 CCCCCAUC G UGGAUCA 3861 TGATCCCA GGCTAGCTACAACGA GTGGGG 12610 5143 AUCGUGGG A UCAAAUGU 3862 ACATTTGA GGCTAGCTACAACGA CCCACGAT 12611 5148 GGGAUCAA A UGUGGAAG 3863 CTTCCACA GGCTAGCTACAACGA TTGATCC 12612 5150 GAUCAAUA G UGGAAGUG 3864 CACTTCCAC GGCTAGCTACAACGA ATTTGATC 12613 5156 AUGUGGAA G UGUCACC 3865 GTGAGACA GGCTACCAACGA ACTTCCAC 12615 5158 GUGGAAGU G UCUCACAC 3866 GTGTGAGA GGCTACCTACAACGA ACTTCCAC <td>5106</td> <td>AAGCCACA G UGUGCGCC</td> <td>3853</td> <td>GGCGCACA GGCTAGCTACAACGA TGTGGCTT</td> <td>12602</td>	5106	AAGCCACA G UGUGCGCC	3853	GGCGCACA GGCTAGCTACAACGA TGTGGCTT	12602
5112 CAGUGUGC G CCAGGGCU 3856 AGCCCTGG GGCTAGCTACAACGA GCACACTG 12605 5118 GCGCCAGG G CUCAGGCU 3857 AGCCTGAG GGCTAGCTACAACGA CCTGGCGC 12606 5124 GGGCUCAG G CUCCACCC 3858 GGGTGGAG GGCTAGCTACAACGA CTGAGCCC 12607 5129 CAGGCUCC A CCCCCAUC 3859 GATGGGG GGCTAGCTACAACGA GGAGGCTG 12608 5135 CCACCCCC A UCGUGGA 3860 TCCCACGA GGCTAGCTACAACGA GATGGGG 12609 5138 CCCCCAUC G UGGGAUCA 3861 TGATCCCA GGCTAGCTACAACGA CACACGAT 12610 5143 AUCGUGGG A UCAAAUGU 3862 ACATTTGA GGCTAGCTACAACGA CCCACGAT 12611 5148 GGGAUCAA A UGGAAGUG 3863 CTTCCACA GGCTAGCTACAACGA ATTGATCCC 12612 5150 GAUCAAAU G UGGAAGUG 3864 CACTTCCA GGCTAGCTACAACGA ATTCCACAT 12613 <td< td=""><td>5108</td><td>GCCACAGU G UGCGCCAG</td><td>3854</td><td>CTGGCGCA GGCTAGCTACAACGA ACTGTGGC</td><td>12603</td></td<>	5108	GCCACAGU G UGCGCCAG	3854	CTGGCGCA GGCTAGCTACAACGA ACTGTGGC	12603
5118 GCGCCAGG G CUCAGGCU 3857 AGCCTGAG GCGTAGCTACAACGA CCTGGCGC 12606 5124 GGGCUCAG G CUCCACCC 3858 GGGTGAG GGCTAGCTACAACGA CTGAGCCC 12607 5129 CAGGCUCC A CCCCCAUC 3859 GATGGGG GGCTAGCTACAACGA GGAGCTG 12608 5135 CCACCCCC A UCGUGGA 3860 TCCCACGA GGCTAGCTACAACGA GGGGGGG 12609 5138 CCCCCAUC G UGGAUCA 3861 TGATCCCA GGCTAGCTACAACGA GATGGGG 12610 5143 AUCGUGGG A UCAAAUGU 3862 ACATTTGA GGCTAGCTACAACGA CCCACGAT 12611 5148 GGGAUCAA A UGUGGAAG 3863 CTTCCACA GGCTAGCTACAACGA ATTTGATC 12612 5150 GAUCAAAU G UGGAAGUG 3864 CACTTCCA GGCTAGCTACAACGA ATTTCACAT 12613 5156 AUGUGGAA G UGUCACAC 3865 GTGTGAGA GGCTAGCTACAACGA ACTTCCAC 12619 5163	5110	CACAGUGU G CGCCAGGG	3855	CCCTGGCG GGCTAGCTACAACGA ACACTGTG	12604
5124 GGGCUCAG G CUCCACCC 3858 GGGTGGAG GGCTAGCTACAACGA CTGAGCCC 12607 5129 CAGGCUCC A CCCCCAUC 3859 GATGGGGG GGCTAGCTACAACGA GGAGCCTG 12608 5135 CCACCCCC A UCGUGGGA 3860 TCCCACGA GGCTAGCTACAACGA GGGGGTGG 12609 5138 CCCCCAUC G UGGGAUCA 3861 TGATCCCA GGCTAGCTACAACGA GATGGGGG 12610 5143 AUCGUGGG A UCAAAUGU 3862 ACATTTGA GGCTAGCTACAACGA CCCACGAT 12611 5148 GGGAUCAA A UGUGGAAG 3863 CTTCCACA GGCTAGCTACAACGA TTGATCC 12612 5150 GAUCAAAU G UGGAAGUG 3864 CACTTCCA GGCTAGCTACAACGA ATTTGATC 12613 5156 AUGUGGAA G UGUCUCAC 3865 GTGAGACA GGCTAGCAACGA ACTTCCAC 12614 5158 GUGGAAGU G UCUCACAC 3866 GTGTGAGA GGCTAGCTACAACGA ACTTCCAC 12615 5163 AGUGUCUC A CACGGCUA 3867 TAGCCGTG GGCTAGCTACAACGA GTGAGACA 12616 5165 UGUCUCAC A CGGCUAAA 3868 TTTAGCCG GGCTAGCTAC	5112	CAGUGUGC G CCAGGGCU	3856	AGCCCTGG GGCTAGCTACAACGA GCACACTG	12605
CAGGCUCC A CCCCCAUC 3859 GATGGGG GGCTAGCTACAACGA GGAGCCTG 12608 5135 CCACCCCC A UCGUGGGA 3860 TCCCACGA GGCTAGCTACAACGA GGGGGTGG 12609 5138 CCCCCAUC G UGGGAUCA 3861 TGATCCCA GGCTAGCTACAACGA GATGGGGG 12610 5143 AUCGUGGG A UCAAAUGU 3862 ACATTTGA GGCTAGCTACAACGA CCCACGAT 12611 5148 GGGAUCAA A UGUGGAAG 3863 CTTCCACA GGCTAGCTACAACGA TTGATCCC 12612 5150 GAUCAAAU G UGGAAGUG 3864 CACTTCCA GGCTAGCTACAACGA ATTTGATC 12613 5156 AUGUGGAA G UGUCUCAC 3865 GTGAGACA GGCTAGCTACAACGA ATTTCACACT 12614 5158 GUGGAAGU G UCUCACAC 3866 GTGTGAGA GGCTAGCTACAACGA ACTTCCAC 12615 5163 AGUGUCUC A CACGGCUA 3867 TAGCCGTG GGCTAGCTACAACGA ACTTCCAC 12616 5165 UGUCUCAC A CGGCUAAA 3868 TTTAGCCG GGCTAGCTACAACGA GTGAGACA 12617 5168 CUCACACG G CUAAAGCC 3869 GGCTTAGCTACAACGA GTGAGACA 12617 5174 CGGCUAAA G CCUACGCU 3870 AGCGTAGG GGCTAGCTACAACGA TTTAGCCG 12618 5174 CGGCUAAA G CCUACGCU 3870 AGCGTAGG GGCTAGCTACAACGA AGGCTTTA 12620 5180 AAGCCUAC G CUACACG 3871 GTGTAGCG GGCTAGCTACAACGA AGGCTTTA 12620 5180 AAGCCUAC G CUACACGG 3872 CCGTGTAG GGCTAGCTACAACGA GTAGGCTT 12621 5183 CCUACGCU A CACGGGCC 3873 GGCCCGTG GGCTAGCTACAACGA GTAGGCTT 12622 5185 UACGCUAC A CGGGCCAA 3874 TTGGCCCG GGCTAGCTACAACGA GTAGCGTA 12623	5118	GCGCCAGG G CUCAGGCU	3857	AGCCTGAG GGCTAGCTACAACGA CCTGGCGC	12606
CCACCCC A UCGUGGA 3860 TCCCACGA GGCTAGCTACAACGA GGGGGTGG 12609 5138 CCCCCAUC G UGGGAUCA 3861 TGATCCCA GGCTAGCTACAACGA GATGGGGG 12610 5143 AUCGUGGG A UCAAAUGU 3862 ACATTTGA GGCTAGCTACAACGA CCCACGAT 12611 5148 GGGAUCAA A UGUGGAAG 3863 CTTCCACA GGCTAGCTACAACGA TTGATCCC 12612 5150 GAUCAAAU G UGGAAGUG 3864 CACTTCCA GGCTAGCTACAACGA ATTTGATC 12613 5156 AUGUGGAA G UGUCUCAC 3865 GTGAGACA GGCTAGCTACAACGA TTCCACAT 12614 5158 GUGGAAGU G UCUCACAC 3866 GTGTGAGA GGCTAGCTACAACGA ACTTCCAC 12615 5163 AGUGUCUC A CACGGCUA 3867 TAGCCGTG GGCTAGCTACAACGA GAGACACT 12616 5165 UGUCUCAC A CGGCUAAA 3868 TTTAGCCG GGCTAGCTACAACGA GTGAGACA 12617 5168 CUCACACG G CUAAAGCC 3869 GGCTTTAG GGCTAGCTACAACGA CGTGTGAG 12618 5174 CGGCUAAA G CCUACGCU 3870 AGCGTAGG GGCTAGCTACAACGA TTTAGCCG 12619 5178 UAAAGCCU A CGCUACAC 3871 GTGTAGCG GGCTAGCTACAACGA AGGCTTTA 12620 5180 AAGCCUAC G CUACACGG 3872 CCGTGTAG GGCTAGCTACAACGA GTAGGCTT 12621 5181 CCUACGCU A CACGGGCC 3873 GGCCCGTG GGCTAGCTACAACGA AGGCTTTA 12620 5182 CCUACGCU A CACGGGCC 3873 GGCCCGTG GGCTAGCTACAACGA AGCGTAGG 12622 5183 CCUACGCU A CACGGGCC 3873 GGCCCGTG GGCTAGCTACAACGA AGCGTAGG 12622	5124	GGGCUCAG G CUCCACCC	3858	GGGTGGAG GGCTAGCTACAACGA CTGAGCCC	12607
CCCCCAUC G UGGGAUCA 3861 TGATCCCA GGCTAGCTACAACGA GATGGGGG 5143 AUCGUGGG A UCAAAUGU 3862 ACATTTGA GGCTAGCTACAACGA CCCACGAT 5148 GGGAUCAA A UGUGGAAG 3863 CTTCCACA GGCTAGCTACAACGA TTGATCCC 5150 GAUCAAAU G UGGAAGUG 3864 CACTTCCA GGCTAGCTACAACGA ATTTGATC 5156 AUGUGGAA G UGUCUCAC 3865 GTGAGACA GGCTAGCTACAACGA ATTTCACAT 5158 GUGGAAGU G UCUCACAC 3866 GTGTGAGA GGCTAGCTACAACGA ACTTCCAC 5163 AGUGUCUC A CACGGCUA 3867 TAGCCCGTG GGCTAGCTACAACGA ACTTCCAC 5165 UGUCUCAC A CGGCUAAA 3868 TTTAGCCG GGCTAGCTACAACGA GTGAGACA 5169 CUCACACG G CUAAAGCC 3869 GGCTTTAG GGCTAGCTACAACGA CGTGTGAG 5174 CGGCUAAA G CCUACGCU 3870 AGCGTAGG GGCTAGCTACAACGA TTTAGCCG 5178 UAAAGCCU A CGCUACAC 3871 GTGTAGCG GGCTAGCTACAACGA AGGCTTTA 12620 5180 AAGCCUAC G CUACACG 3872 CCCGTGTAG GGCTAGCTACAACGA GTAGGCTT 12621 5183 CCUACGCU A CACGGCCA 3874 TTGGCCCG GGCTAGCTACAACGA AGCGTAGG 12622	5129	CAGGCUCC A CCCCCAUC	3859	GATGGGG GGCTAGCTACAACGA GGAGCCTG	12608
AUCGUGGG A UCAAAUGU 3862 ACATTTGA GGCTAGCTACAACGA CCCACGAT 12611 5148 GGGAUCAA A UGUGGAAG 3863 CTTCCACA GGCTAGCTACAACGA CCCACGAT 12612 5150 GAUCAAAU G UGGAAGUG 3864 CACTTCCA GGCTAGCTACAACGA ATTTGATC 12613 5156 AUGUGGAA G UGUCUCAC 3865 GTGAGACA GGCTAGCTACAACGA ATTCCACAT 12614 5158 GUGGAAGU G UCUCACAC 3866 GTGTGAGA GGCTAGCTACAACGA ACTTCCAC 12615 5163 AGUGUCUC A CACGGCUA 3867 TAGCCGTG GGCTAGCTACAACGA GAGACACT 12616 5165 UGUCUCAC A CGGCUAAA 3868 TTTAGCCG GGCTAGCTACAACGA GTGAGACA 12617 5168 CUCACACG G CUAAAGCC 3869 GGCTTTAG GGCTAGCTACAACGA CGTGTGAG 12618 5174 CGGCUAAA G CCUACGCU 3870 AGCGTAGG GGCTAGCTACAACGA TTTAGCCG 12619 5178 UAAAGCCU A CGCUACAC 3871 GTGTAGCG GGCTAGCTACAACGA AGGCTTTA 12620 5180 AAGCCUAC G CUACACGG 3872 CCGTGTAG GGCTAGCTACAACGA AGGCTTTA 12621 5183 CCUACGCU A CACGGGCC 3873 GGCCCGTG GGCTAGCTACAACGA AGCGTAGG 12622 5185 UACGCUAC A CGGGCCAA 3874 TTGGCCCG GGCTAGCTACAACGA AGCGTAGG 12622	5135	CCACCCC A UCGUGGGA	3860	TCCCACGA GGCTAGCTACAACGA GGGGGTGG	12609
AUCGUGGG A UCAAAUGU 3862 ACATTTGA GGCTAGCTACAACGA CCCACGAT 12611 5148 GGGAUCAA A UGUGGAAG 3863 CTTCCACA GGCTAGCTACAACGA TTGATCCC 12612 5150 GAUCAAAU G UGGAAGUG 3864 CACTTCCA GGCTAGCTACAACGA ATTTGATC 12613 5156 AUGUGGAA G UGUCUCAC 3865 GTGAGACA GGCTAGCTACAACGA ATTTCACT 12614 5158 GUGGAAGU G UCUCACAC 3866 GTGTGAGA GGCTAGCTACAACGA ACTTCCAC 12615 5163 AGUGUCUC A CACGGCUA 3867 TAGCCGTG GGCTAGCTACAACGA GAGACACT 12616 5165 UGUCUCAC A CGGCUAAA 3868 TTTAGCCG GGCTAGCTACAACGA GTGAGACA 12617 5168 CUCACACG G CUAAAGCC 3869 GGCTTTAG GGCTAGCTACAACGA CGTGTGAG 12618 5174 CGGCUAAA G CCUACGCU 3870 AGCGTAGG GGCTAGCTACAACGA TTTAGCCG 12619 5178 UAAAGCCU A CGCUACAC 3871 GTGTAGCG GGCTAGCTACAACGA AGGCTTTA 12620 5180 AAGCCUAC G CUACACGG 3872 CCGTGTAG GGCTAGCTACAACGA GTAGGCTT 12621 5183 CCUACGCU A CACGGGCC 3873 GGCCCGTG GGCTAGCTACAACGA AGCGTAGG 12622 5185 UACGCUAC A CGGGCCAA 3874 TTGGCCCG GGCTAGCTACAACGA GTAGCGTA 12623	5138	CCCCCAUC G UGGGAUCA	3861	TGATCCCA GGCTAGCTACAACGA GATGGGGG	12610
5148GGGAUCAA A UGUGGAAG3863CTTCCACA GGCTAGCTACAACGA TTGATCCC126125150GAUCAAAU G UGGAAGUG3864CACTTCCA GGCTAGCTACAACGA ATTTGATC126135156AUGUGGAA G UGUCUCAC3865GTGAGACA GGCTAGCTACAACGA TTCCACAT126145158GUGGAAGU G UCUCACAC3866GTGTGAGA GGCTAGCTACAACGA ACTTCCAC126155163AGUGUCUC A CACGGCUA3867TAGCCGTG GGCTAGCTACAACGA GAGACACT126165165UGUCUCAC A CGGCUAAA3868TTTAGCCG GGCTAGCTACAACGA GTGAGACA126175168CUCACACG G CUAAAGCC3869GGCTTTAG GGCTAGCTACAACGA CGTGTGAG126185174CGGCUAAA G CCUACGCU3870AGCGTAGG GGCTAGCTACAACGA TTTAGCCG126195178UAAAGCCU A CGCUACAC3871GTGTAGCG GGCTAGCTACAACGA AGGCTTA126205180AAGCCUAC G CUACACGG3872CCGTGTAG GGCTAGCTACAACGA GTAGGCTT126215183CCUACGCU A CACGGGCC3873GGCCCGTG GGCTAGCTACAACGA AGCGTAGG126225185UACGCUAC A CGGGCCAA3874TTGGCCCG GGCTAGCTACAACGA GTAGCGTA12623	5143	AUCGUGGG A UCAAAUGU	3862	ACATTIGA GGCTAGCTACAACGA CCCACGAT	
S150 GAUCAAAU G UGGAAGUG 3864 CACTTCCA GGCTAGCTACAACGA ATTTGATC 12613 5156 AUGUGGAA G UGUCUCAC 3865 GTGAGACA GGCTAGCTACAACGA TTCCACAT 12614 5158 GUGGAAGU G UCUCACAC 3866 GTGTGAGA GGCTAGCTACAACGA ACTTCCAC 12615 5163 AGUGUCUC A CACGGCUA 3867 TAGCCGTG GGCTAGCTACAACGA GAGACACT 12616 5165 UGUCUCAC A CGGCUAAA 3868 TTTAGCCG GGCTAGCTACAACGA GTGAGACA 12617 5168 CUCACACG G CUAAAGCC 3869 GGCTTAG GGCTAGCTACAACGA CGTGTGAG 12618 5174 CGGCUAAA G CCUACGCU 3870 AGCGTAGG GGCTAGCTACAACGA TTTAGCCG 12619 5178 UAAAGCCU A CGCUACAC 3871 GTGTAGCG GGCTAGCTACAACGA AGGCTTTA 12620 5180 AAGCCUAC G CUACACGG 3872 CCGTGTAG GGCTAGCTACAACGA GTAGGCTT 12621 5183 CCUACGCU A CACGGGCC 3873 GGCCCGTG GGCTAGCTACAACGA AGCGTAGG 12622 5185 UACGCUAC A CGGGCCAA 3874 TTGGCCCG GGCTAGCTACAACGA GTAGCGTA 12623	5148	GGGAUCAA A UGUGGAAG	3863		
GUGGAAGU G UCUCACAC 3866 GTGTGAGA GGCTAGCTACAACGA ACTTCCAC 12615 5163 AGUGUCUC A CACGGCUA 3867 TAGCCGTG GGCTAGCTACAACGA GAGACACT 12616 5165 UGUCUCAC A CGGCUAAA 3868 TTTAGCCG GGCTAGCTACAACGA GTGAGACA 12617 5168 CUCACACG G CUAAAGCC 3869 GGCTTAG GGCTAGCTACAACGA CGTGTGAG 12618 5174 CGGCUAAA G CCUACGCU 3870 AGCGTAGG GGCTAGCTACAACGA TTTAGCCG 12619 5178 UAAAGCCU A CGCUACAC 3871 GTGTAGCG GGCTAGCTACAACGA AGGCTTTA 12620 5180 AAGCCUAC G CUACACG 3872 CCGTGTAG GGCTAGCTACAACGA GTAGGCTT 12621 5183 CCUACGCU A CACGGGCC 3873 GGCCCGTG GGCTAGCTACAACGA AGCGTAGG 12622 5185 UACGCUAC A CGGGCCAA 3874 TTGGCCCG GGCTAGCTACAACGA GTAGCGTA 12623	5150	GAUCAAAU G UGGAAGUG	3864	CACTTCCA GGCTAGCTACAACGA ATTTGATC	12613
AGUGUCUC A CACGGCUA 3867 TAGCCGTG GGCTAGCTACAACGA GAGACACT 12616 5165 UGUCUCAC A CGGCUAAA 3868 TTTAGCCG GGCTAGCTACAACGA GTGAGACA 12617 5168 CUCACACG G CUAAAGCC 3869 GGCTTAG GGCTAGCTACAACGA CGTGTGAG 12618 5174 CGGCUAAA G CCUACGCU 3870 AGCGTAGG GGCTAGCTACAACGA TTTAGCCG 12619 5178 UAAAGCCU A CGCUACAC 3871 GTGTAGCG GGCTAGCTACAACGA AGGCTTTA 12620 5180 AAGCCUAC G CUACACGG 3872 CCGTGTAG GGCTAGCTACAACGA GTAGGCTT 12621 5183 CCUACGCU A CACGGGCC 3873 GGCCCGTG GGCTAGCTACAACGA AGCGTAGG 12622 5185 UACGCUAC A CGGGCCAA 3874 TTGGCCCG GGCTAGCTACAACGA GTAGCGTA 12623	5156	AUGUGGAA G UGUCUCAC	3865	GTGAGACA GGCTAGCTACAACGA TTCCACAT	12614
5165UGUCUCAC A CGGCUAAA3868TTTAGCCG GGCTAGCTACAACGA GTGAGACA126175168CUCACACG G CUAAAGCC3869GGCTTTAG GGCTAGCTACAACGA CGTGTGAG126185174CGGCUAAA G CCUACGCU3870AGCGTAGG GGCTAGCTACAACGA TTTAGCCG126195178UAAAGCCU A CGCUACAC3871GTGTAGCG GGCTAGCTACAACGA AGGCTTTA126205180AAGCCUAC G CUACACGG3872CCGTGTAG GGCTAGCTACAACGA GTAGGCTT126215183CCUACGCU A CACGGGCC3873GGCCCGTG GGCTAGCTACAACGA AGCGTAGG126225185UACGCUAC A CGGGCCAA3874TTGGCCCG GGCTAGCTACAACGA GTAGCGTA12623	5158	GUGGAAGU G UCUCACAC	3866	GTGTGAGA GGCTAGCTACAACGA ACTTCCAC	12615
5168 CUCACACG G CUAAAGCC 3869 GGCTTTAG GGCTAGCTACAACGA CGTGTGAG 12618 5174 CGGCUAAA G CCUACGCU 3870 AGCGTAGG GGCTAGCTACAACGA TTTAGCCG 12619 5178 UAAAGCCU A CGCUACAC 3871 GTGTAGCG GGCTAGCTACAACGA AGGCTTTA 12620 5180 AAGCCUAC G CUACACGG 3872 CCGTGTAG GGCTAGCTACAACGA GTAGGCTT 12621 5183 CCUACGCU A CACGGGCC 3873 GGCCCGTG GGCTAGCTACAACGA AGCGTAGG 12622 5185 UACGCUAC A CGGGCCAA 3874 TTGGCCCG GGCTAGCTACAACGA GTAGCGTA 12623	5163	AGUGUCUC A CACGGCUA	3867	TAGCCGTG GGCTAGCTACAACGA GAGACACT	12616
5168 CUCACACG G CUAAAGCC 3869 GGCTTTAG GGCTAGCTACAACGA CGTGTGAG 12618 5174 CGGCUAAA G CCUACGCU 3870 AGCGTAGG GGCTAGCTACAACGA TTTAGCCG 12619 5178 UAAAGCCU A CGCUACAC 3871 GTGTAGCG GGCTAGCTACAACGA AGGCTTTA 12620 5180 AAGCCUAC G CUACACGG 3872 CCGTGTAG GGCTAGCTACAACGA GTAGGCTT 12621 5183 CCUACGCU A CACGGGCC 3873 GGCCCGTG GGCTAGCTACAACGA AGCGTAGG 12622 5185 UACGCUAC A CGGGCCAA 3874 TTGGCCCG GGCTAGCTACAACGA GTAGCGTA 12623	5165	UGUCUCAC A CGGCUAAA	3868	 	12617
5178 UAAAGCCU A CGCUACAC 3871 GTGTAGCG GGCTAGCTACAACGA AGGCTTTA 12620 5180 AAGCCUAC G CUACACGG 3872 CCGTGTAG GGCTAGCTACAACGA GTAGGCTT 12621 5183 CCUACGCU A CACGGGCC 3873 GGCCCGTG GGCTAGCTACAACGA AGCGTAGG 12622 5185 UACGCUAC A CGGGCCAA 3874 TTGGCCCG GGCTAGCTACAACGA GTAGCGTA 12623	5168	CUCACACG G CUAAAGCC	3869	GGCTTTAG GGCTAGCTACAACGA CGTGTGAG	
5178 UAAAGCCU A CGCUACAC 3871 GTGTAGCG GGCTAGCTACAACGA AGGCTTTA 12620 5180 AAGCCUAC G CUACACGG 3872 CCGTGTAG GGCTAGCTACAACGA GTAGGCTT 12621 5183 CCUACGCU A CACGGGCC 3873 GGCCCGTG GGCTAGCTACAACGA AGCGTAGG 12622 5185 UACGCUAC A CGGGCCAA 3874 TTGGCCCG GGCTAGCTACAACGA GTAGCGTA 12623	5174	CGGCUAAA G CCUACGCU	3870		12619
5180 AAGCCUAC G CUACACGG 3872 CCGTGTAG GGCTAGCTACAACGA GTAGGCTT 12621 5183 CCUACGCU A CACGGGCC 3873 GGCCCGTG GGCTAGCTACAACGA AGCGTAGG 12622 5185 UACGCUAC A CGGGCCAA 3874 TTGGCCCG GGCTAGCTACAACGA GTAGCGTA 12623	5178	UAAAGCCU A CGCUACAC	3871	GTGTAGCG GGCTAGCTACAACGA AGGCTTTA	12620
5185 UACGCUAC A CGGGCCAA 3874 TTGGCCCG GGCTAGCTACAACGA GTAGCGTA 12623	5180	AAGCCUAC G CUACACGG	3872		12621
	5183	CCUACGCU A CACGGGCC	3873	GGCCCGTG GGCTAGCTACAACGA AGCGTAGG	12622
5189 CUACACGG G CCAACACC 3875 GGTGTTGG GGCTAGCTACGA CCGTGTAG 12624	5185	UACGCUAC A CGGGCCAA	3874	TTGGCCCG GGCTAGCTACAACGA GTAGCGTA	12623
	5189	CUACACGG G CCAACACC	3875	GGTGTTGG GGCTAGCTACAACGA CCGTGTAG	12624

5193	ACGGGCCA A CACCCCUG	3876	CAGGGGTG GGCTAGCTACAACGA TGGCCCGT	12625
5195	GGGCCAAC A CCCCUGCU	3877	AGCAGGGG GGCTAGCTACAACGA GTTGGCCC	12626
5201	ACACCCCU G CUGUAUAG	3878	CTATACAG GGCTAGCTACAACGA AGGGGTGT	12627
5204	CCCCUGCU G UAUAGGCU	3879	AGCCTATA GGCTAGCTACAACGA AGCAGGGG	12628
5206	CCUGCUGU A UAGGCUAG	3880	CTAGCCTA GGCTAGCTACAACGA ACAGCAGG	12629
5210	CUGUAUAG G CUAGGAGC	3881	GCTCCTAG GGCTAGCTACAACGA CTATACAG	12630
5217	GGCUAGGA G CCGUCCAA	3882	TTGGACGG GGCTAGCTACAACGA TCCTAGCC	12631
5220	UAGGAGCC G UCCAAAAU	3883	ATTTTGGA GGCTAGCTACAACGA GGCTCCTA	12632
5227	CGUCCAAA A UGAUGUCA	3884	TGACATCA GGCTAGCTACAACGA TTTGGACG	12633
5230	CCAAAAUG A UGUCACCC	3885	GGGTGACA GGCTAGCTACAACGA CATTTTGG	12634
5232	AAAAUGAU G UCACCCUC	3886	GAGGGTGA GGCTAGCTACAACGA ATCATTTT	12635
5235	AUGAUGUC A CCCUCACA	3887	TGTGAGGG GGCTAGCTACAACGA GACATCAT	12636
5241	UCACCCUC A CACACCCC	3888	GGGTGTG GGCTAGCTACAACGA GAGGGTGA	12637
5243	ACCCUCAC A CACCCCAU	3889	ATGGGGTG GGCTAGCTACAACGA GTGAGGGT	12638
5245	CCUCACAC A CCCCAUAA	3890	TTATGGGG GGCTAGCTACAACGA GTGTGAGG	12639
5250	CACACCCC A UAACCAAA	3891	TTTGGTTA GGCTAGCTACAACGA GGGGTGTG	12640
5253	ACCCAUA A CCAAAUAC	3892	GTATTTGG GGCTAGCTACAACGA TATGGGGT	12641
5258	AUAACCAA A UACAUCAU	3893	ATGATGTA GGCTAGCTACAACGA TTGGTTAT	12642
5260	AACCAAAU A CAUCAUGA	3894	TCATGATG GGCTAGCTACAACGA ATTTGGTT	12643
5262	CCAAAUAC A UCAUGACA	3895	TGTCATGA GGCTAGCTACAACGA GTATTTGG	12644
5265	AAUACAUC A UGACAUGC	3896	GCATGTCA GGCTAGCTACAACGA GATGTATT	12645
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	AUCAUGAC A UGCAUGUC	3898	GACATGCA GGCTAGCTACAACGA CATGATGT	12646
5270 5272	CAUGACAU G CAUGUCGG			12647
	UGACAUGC A UGUCGGCU	3899	CCGACATG GGCTAGCTACAACGA ATGTCATG	12648
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5276	ACAUGCAU G UCGGCUGA	3901	TCAGCCGA GGCTAGCTACAACGA ATGCATGT	12650
5280	GCAUGUCG G CUGACCUG	3902	CAGGTCAG GGCTAGCTACAACGA CGACATGC	12651
5284	GUCGGCUG A CCUGGAGG	3903	CCTCCAGG GGCTAGCTACAACGA CAGCCGAC	12652
5292	ACCUGGAG G UCGUCACC	3904	GGTGACGA GGCTAGCTACAACGA CTCCAGGT	12653
5295	UGGAGGUC G UCACCAGC	3905	GCTGGTGA GGCTAGCTACAACGA GACCTCCA	12654
5298	AGGUCGUC A CCAGCACC	3906	GGTGCTGG GGCTAGCTACAACGA GACGACCT	12655
5302	CGUCACCA G CACCUGGG	3907	CCCAGGTG GGCTAGCTACAACGA TGGTGACG	12656
5304	UCACCAGC A CCUGGGUG	3908	CACCCAGG GGCTAGCTACAACGA GCTGGTGA	12657
5310	GCACCUGG G UGCUAGUA	3909	TACTAGCA GGCTAGCTACAACGA CCAGGTGC	12658
5312	ACCUGGGU G CUAGUAGG	3910	CCTACTAG GGCTAGCTACAACGA ACCCAGGT	12659
5316	GGGUGCUA G UAGGUGGC	3911	GCCACCTA GGCTAGCTACAACGA TAGCACCC	12660
5320	GCUAGUAG G UGGCGUCC	3912	GGACGCCA GGCTAGCTACAACGA CTACTAGC	12661
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5331	GCGUCCUG G CAGCUCUG	3915	CAGAGCTG GGCTAGCTACAACGA CAGGACGC	12664
5334	UCCUGGCA G CUCUGACC	3916	GGTCAGAG GGCTAGCTACAACGA TGCCAGGA	12665
5340	CAGCUCUG A CCGCGUAU	3917	ATACGCGG GGCTAGCTACAACGA CAGAGCTG	12666
5343	CUCUGACC G CGUAUUGC	3918	GCAATACG GGCTAGCTACAACGA GGTCAGAG	12667
5345	CUGACCGC G UAUUGCCU	3919	AGGCAATA GGCTAGCTACAACGA GCGGTCAG	12668
5347	GACCGCGU A UUGCCUGA	3920	TCAGGCAA GGCTAGCTACAACGA ACGCGGTC	12669
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5355	AUUGCCUG A CGACAGGC	3922	GCCTGTCG GGCTAGCTACAACGA CAGGCAAT	12671
5358	GCCUGACG A CAGGCAGC	3923	GCTGCCTG GGCTAGCTACAACGA CGTCAGGC	12672
5362	GACGACAG G CAGCGUGG	3924	CCACGCTG GGCTAGCTACAACGA CTGTCGTC	12673
5365	GACAGGCA G CGUGGUCA	3925	TGACCACG GGCTAGCTACAACGA TGCCTGTC	12674
5367	CAGGCAGC G UGGUCAUU	3926	AATGACCA GGCTAGCTACAACGA GCTGCCTG	12675
5370	GCAGCGUG G UCAUUGUG	3927	CACAATGA GGCTAGCTACAACGA CACGCTGC	12676
5373	GCGUGGUC A UUGUGGGC	3928	GCCCACAA GGCTAGCTACAACGA GACCACGC	12677
5376	UGGUCAUU G UGGGCAGA	3929	TCTGCCCA GGCTAGCTACAACGA AATGACCA	12678
5380	CAUUGUGG G CAGAAUCA	3930	TGATTCTG GGCTAGCTACAACGA CCACAATG	12679
5385	UGGGCAGA A UCAUCUUG	3931	CAAGATGA GGCTAGCTACAACGA TCTGCCCA	12680

5388	GCAGAAUC A UCUUGUCC	3932	GGACAAGA GGCTAGCTACAACGA GATTCTGC	12681
5393	AUCAUCUU G UCCGGGAA	3933	TTCCCGGA GGCTAGCTACAACGA AAGATGAT	12682
5402	UCCGGGAA G CCGGCUGU	3934	ACAGCCGG GGCTAGCTACAACGA TTCCCGGA	12683
5406	GGAAGCCG G CUGUUAUC	3935	GATAACAG GGCTAGCTACAACGA CGGCTTCC	12684
5409	AGCCGGCU G UUAUCCCC	3936	GGGGATAA GGCTAGCTACAACGA AGCCGGCT	12685
5412	CGGCUGUU A UCCCCGAC	3937	GTCGGGGA GGCTAGCTACAACGA AACAGCCG	12686
5419	UAUCCCCG A CAGGGAGG	3938	CCTCCCTG GGCTAGCTACAACGA CGGGGATA	12687
5427	ACAGGGAG G CUCUCUAC	3939	GTAGAGAG GGCTAGCTACAACGA CTCCCTGT	12688
5434	GGCUCUCU A CCAGGAGU	3940	ACTCCTGG GGCTAGCTACAACGA AGAGAGCC	12689
5441	UACCAGGA G UUCGAUGA	3941	TCATCGAA GGCTAGCTACAACGA TCCTGGTA	12690
5446	GGAGUUCG A UGAGAUGG	3942	CCATCTCA GGCTAGCTACAACGA CGAACTCC	12691
5451	UCGAUGAG A UGGAGGAG	3943	CTCCTCCA GGCTAGCTACAACGA CTCATCGA	12692
5459	AUGGAGGA G UGUGCCUC	3944	GAGGCACA GGCTAGCTACAACGA TCCTCCAT	12693
5461	GGAGGAGU G UGCCUCAC	3945	GTGAGGCA GGCTAGCTACAACGA ACTCCTCC	12694
5463	AGGAGUGU G CCUCACAC	3946	GTGTGAGG GGCTAGCTACAACGA ACACTCCT	12695
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5470	UGCCUCAC A CCUCCCUU	3948	AAGGAGG GGCTAGCTACAACGA GTGAGGCA	12697
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5481	UCCCUUAC A UCGAACAG	3950	CTGTTCGA GGCTAGCTACAACGA GTAAGGGA	
5486	UACAUCGA A CAGGGGAU	3950	ATCCCCTG GGCTAGCTACAACGA TCGATGTA	12699 12700
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	GGGAUGCA G CUCGCCGA			12702
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5516	CAGUUCAA G CAGAAGGC	3958	GCCTTCTG GGCTAGCTACAACGA TTGAACTG	12707
5523	AGCAGAAG G CGCUCGGA	3959	TCCGAGCG GGCTAGCTACAACGA CTTCTGCT	12708
5525	CAGAAGGC G CUCGGAUU	3960	AATCCGAG GGCTAGCTACAACGA GCCTTCTG	12709
5531	GCGCUCGG A UUGCUGCA	3961	TGCAGCAA GGCTAGCTACAACGA CCGAGCGC	12710
5534	CUCGGAUU G CUGCAAAC	3962	GTTTGCAG GGCTAGCTACAACGA AATCCGAG	12711
5537	GGAUUGCU G CAAACAGC	3963	GCTGTTTG GGCTAGCTACAACGA AGCAATCC	12712
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5544	UGCAAACA G CCACCAAC	3965	GTTGGTGG GGCTAGCTACAACGA TGTTTGCA	12714
5547	AAACAGCC A CCAACCAA	3966	TTGGTTGG GGCTAGCTACAACGA GGCTGTTT	12715
5551	AGCCACCA A CCAAGCGG	3967	CCGCTTGG GGCTAGCTACAACGA TGGTGGCT	12716
5556	CCAACCAA G CGGAGGCU	3968	AGCCTCCG GGCTAGCTACAACGA TTGGTTGG	12717
5562	AAGCGGAG G CUGCUGCU	3969	AGCAGCAG GGCTAGCTACAACGA CTCCGCTT	12718
5565	CGGAGGCU G CUGCUCCC	3970	GGGAGCAG GGCTAGCTACAACGA AGCCTCCG	12719
5568	AGGCUGCU G CUCCCGUG	3971	CACGGGAG GGCTAGCTACAACGA AGCAGCCT	12720
5574	CUGCUCCC G UGGUGGAA	3972	TTCCACCA GGCTAGCTACAACGA GGGAGCAG	12721
5577	CUCCCGUG G UGGAAUCC	3973	GGATTCCA GGCTAGCTACAACGA CACGGGAG	12722
5582	GUGGUGGA A UCCAAGUG	3974	CACTTGGA GGCTAGCTACAACGA TCCACCAC	12723
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5591	UCCAAGUG G CGAGCCCU	3976	AGGGCTCG GGCTAGCTACAACGA CACTTGGA	12725
5595	AGUGGCGA G CCCUUGAG	3977	CTCAAGGG GGCTAGCTACAACGA TCGCCACT	12726
5604	CCCUUGAG G CUUUCUGG	3978	CCAGAAAG GGCTAGCTACAACGA CTCAAGGG	12727
5613	CUUUCUGG G CGAAGCAC	3979	GTGCTTCG GGCTAGCTACAACGA CCAGAAAG	12728
5618	UGGGCGAA G CACAUGUG	3980	CACATGTG GGCTAGCTACAACGA TTCGCCCA	12729
5620	GGCGAAGC A CAUGUGGA	3981	TCCACATG GGCTAGCTACAACGA GCTTCGCC	12730
5622	CGAAGCAC A UGUGGAAU	3982	ATTCCACA GGCTAGCTACAACGA GTGCTTCG	12731
5624	AAGCACAU G UGGAAUUU	3983	AAATTCCA GGCTAGCTACAACGA ATGTGCTT	12732
5629	CAUGUGGA A UUUCAUCA	3984	TGATGAAA GGCTAGCTACAACGA TCCACATG	12733
5634	GGAAUUUC A UCAGCGGG	3985	CCCGCTGA GGCTAGCTACAACGA GAAATTCC	12734
5638	UUUCAUCA G CGGGAUAC	3986	GTATCCCG GGCTAGCTACAACGA TGATGAAA	12735
5643	UCAGCGGG A UACAGUAC	3987	GTACTGTA GGCTAGCTACAACGA CCCGCTGA	12736
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5645	AGCGGGAU A CAGUACCU	3988	AGGTACTG GGCTAGCTACAACGA ATCCCGCT	12737
5648	GGGAUACA G UACCUAGC	3989	GCTAGGTA GGCTAGCTACAACGA TGTATCCC	12738
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5659	CCUAGCAG G CUUGUCCA	3992	TGGACAAG GGCTAGCTACAACGA CTGCTAGG	12741
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5672	UCCACUCU G CCUGGGAA	3995	TTCCCAGG GGCTAGCTACAACGA AGAGTGGA	12744
5680	GCCUGGGA A CCCCGCGA	3996	TCGCGGGG GGCTAGCTACAACGA TCCCAGGC	12745
5685	GGAACCCC G CGAUAGCA	3997	TGCTATCG GGCTAGCTACAACGA GGGGTTCC	12746
5688	ACCCCGCG A UAGCAUCA	3998	TGATGCTA GGCTAGCTACAACGA CGCGGGGT	12747
5691	CCGCGAUA G CAUCAUUG	3999	CAATGATG GGCTAGCTACAACGA TATCGCGG	12748
5693	GCGAUAGC A UCAUUGAU	4000	ATCAATGA GGCTAGCTACAACGA GCTATCGC	12749
5696	AUAGCAUC A UUGAUGGC	4001	GCCATCAA GGCTAGCTACAACGA GATGCTAT	12750
5700	CAUCAUUG A UGGCAUUC	4002	GAATGCCA GGCTAGCTACAACGA CAATGATG	12751
5703	CAUUGAUG G CAUUCACA	4003	TGTGAATG GGCTAGCTACAACGA CATCAATG	
	· · · · · · · · · · · · · · · · · · ·			12752
5705	UUGAUGGC A UUCACAGC	4004	GCTGTGAA GGCTAGCTACAACGA GCCATCAA	12753
5709	UGGCAUUC A CAGCCUCC	4005	GGAGGCTG GGCTAGCTACAACGA GAATGCCA	12754
5712	CAUUCACA G CCUCCAUC	4006	GATGGAGG GGCTAGCTACAACGA TGTGAATG	12755
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5721	CCUCCAUC A CCAGCCCG	4008	CGGGCTGG GGCTAGCTACAACGA GATGGAGG	12757
5725	CAUCACCA G CCCGCUCA	4009	TGAGCGGG GGCTAGCTACAACGA TGGTGATG	12758
5729	ACCAGCCC G CUCACCAC	4010	GTGGTGAG GGCTAGCTACAACGA GGGCTGGT	12759
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5736	CGCUCACC A CCCAAAGC	4012	GCTTTGGG GGCTAGCTACAACGA GGTGAGCG	12761
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5745	CCCAAAGC A CCCUCCUG	4014	CAGGAGGG GGCTAGCTACAACGA GCTTTGGG	12763
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5771	UUGGGAGG G UGGGUGGC	4018	GCCACCCA GGCTAGCTACAACGA CCTCCCAA	12767
5775	GAGGGUGG G UGGCCGCC	4019	GGCGGCCA GGCTAGCTACAACGA CCACCCTC	12768
5778	GGUGGGUG G CCGCCCAA	4020	TTGGGCGG GGCTAGCTACAACGA CACCCACC	12769
5781	GGGUGGCC G CCCAACUC	4021	GAGTTGGG GGCTAGCTACAACGA GGCCACCC	12770
5786	GCCGCCA A CUCGCUCC	4022	GGAGCGAG GGCTAGCTACAACGA TGGGCGGC	12771
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5823	UCGUGGGC G CCGGCAUC	4029	GATGCCGG GGCTAGCTACAACGA GCCCACGA	12778
5827	GGGCGCCG G CAUCGCUG	4030	CAGCGATG GGCTAGCTACAACGA CGGCGCCC	12779
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5832	CCGGCAUC G CUGGCGCG	4032	CGCGCCAG GGCTAGCTACAACGA GATGCCGG	12781
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5851	UGUUGGCA G CAUAGGCC	4038	GGCCTATG GGCTAGCTACAACGA TGCCAACA	12787
5853	UUGGCAGC A UAGGCCUU	4039	AAGGCCTA GGCTAGCTACAACGA GCTGCCAA	12788
5857	CAGCAUAG G CCUUGGGA	4040	TCCCAAGG GGCTAGCTACAACGA CTATGCTG	12789
5868	UUGGGAAG G UGCUUGUA	4041	TACAAGCA GGCTAGCTACAACGA CTTCCCAA	12790
5870	GGGAAGGU G CUUGUAGA	4042	TCTACAAG GGCTAGCTACAACGA ACCTTCCC	12791
5874	AGGUGCUU G UAGACAUU	4043	AATGTCTA GGCTAGCTACAACGA AAGCACCT	12792
		1 1013		26176

5878	GCUUGUAG A CAUUCUGG	4044	CCAGAATG GGCTAGCTACAACGA CTACAAGC	1279
5880	UUGUAGAC A UUCUGGCG	4045	CGCCAGAA GGCTAGCTACAACGA GTCTACAA	1279
5886	ACAUUCUG G CGGGCUAU	4046	ATAGCCCG GGCTAGCTACAACGA CAGAATGT	1279
5890	UCUGGCGG G CUAUGGAG	4047	CTCCATAG GGCTAGCTACAACGA CCGCCAGA	1279
5893	GGCGGGCU A UGGAGCAG	4048	CTGCTCCA GGCTAGCTACAACGA AGCCCGCC	1279
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5948	GGGGAGAU G CCUUCUAC	4060	GTAGAAGG GGCTAGCTACAACGA ATCTCCCC	1280
5955	UGCCUUCU A CCGAGGAC	4061	GTCCTCGG GGCTAGCTACAACGA AGAAGGCA	1281
5962	UACCGAGG A CCUGGUCA	4062	TGACCAGG GGCTAGCTACAACGA CCTCGGTA	128
5967	AGGACCUG G UCAACUUA	4063	TAAGTTGA GGCTAGCTACAACGA CAGGTCCT	-
5971	CCUGGUCA A CUUACUCC	4063	GGAGTAAG GGCTAGCTACAACGA CAGGTCCT	128
5975	GUCAACUU A CUCCCUGC			128
		4065	GCAGGGAG GGCTAGCTACAACGA AAGTTGAC	128
5982	UACUCCCU G CCAUCCUC	4066	GAGGATGG GGCTAGCTACAACGA AGGGAGTA	128
5985	UCCCUGCC A UCCUCUCU	4067	AGAGAGGA GGCTAGCTACAACGA GGCAGGGA	128
5998	CUCUCCUG G CGCCCUGG	4068	CCAGGGCG GGCTAGCTACAACGA CAGGAGAG	128
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6009	CCCUGGUC G UCGGGGUG	4071	CACCCGA GGCTAGCTACAACGA GACCAGGG	128:
6015	UCGUCGGG G UGGUGUGC	4072	GCACACCA GGCTAGCTACAACGA CCCGACGA	1282
6018	UCGGGGUG G UGUGCGCA	4073	TGCGCACA GGCTAGCTACAACGA CACCCCGA	128
6020	GGGGUGGU G UGCGCAGC	4074	GCTGCGCA GGCTAGCTACAACGA ACCACCCC	128:
6022	GGUGGUGU G CGCAGCGA	4075	TCGCTGCG GGCTAGCTACAACGA ACACCACC	1282
6024	UGGUGUGC G CAGCGAUA	4076	TATCGCTG GGCTAGCTACAACGA GCACACCA	128
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6032	GCAGCGAU A CUGCGUCG	4079	CGACGCAG GGCTAGCTACAACGA ATCGCTGC	1282
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6037	GAUACUGC G UCGGCAUG	4081	CATGCCGA GGCTAGCTACAACGA GCAGTATC	1283
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6043	GCGUCGGC A UGUGGGCC	4083	GGCCCACA GGCTAGCTACAACGA GCCGACGC	1283
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6063	GAGAGGGC G CUGUGCAG	4087	CTGCACAG GGCTAGCTACAACGA GCCCTCTC	1283
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6079	GUGGAUGA A UCGGCUGA	4092	TCAGCCGA GGCTAGCTACAACGA TCATCCAC	1284
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6087	AUCGGCUG A UAGCGUUC	4094	GAACGCTA GGCTAGCTACAACGA CAGCCGAT	1284
6090	GGCUGAUA G CGUUCGCU	4095	AGCGAACG GGCTAGCTACAACGA TATCAGCC	1284
6092	CUGAUAGC G UUCGCUUC	4096	GAAGCGAA GGCTAGCTACAACGA GCTATCAG	1284
6096	UAGCGUUC G CUUCGCGG	4097	CCGCGAAG GGCTAGCTACAACGA GAACGCTA	1284
6101	UUCGCUUC G CGGGGCAA	4098	TTGCCCCG GGCTAGCTACAACGA GAAGCGAA	1284
			GAROCOAN	~~~

				TOTAL CONTROL TO CONTR	10010
6114	6109	GCGGGGCA A CCAUGUCU	4100	AGACATGG GGCTAGCTACAACGA TGCCCCGC	12849
6125					
6127 CCCCAGGC A CURUGUGC 4105 GCACATAG GGCTAGCTACAACGA GGTGGGG 1285- 6132 CGCACUAU G UGCCUGAG 4106 CAGGCAC GGCTAGCTACAACGA ATAGTGCC 1285- 6134 CACUAUGU G UGCCUGAG 4107 CTCAGGCA GGCTAGCTACAACGA ATAGTGCC 1285- 6144 CACUAUGU G CCUCAGAG 4109 CTCCAGGC GGCTAGCTACAACGA ATAGTGCC 1285- 6145 UGAGAGC A CGCAGCGAG 4109 CTCCAGG GGCTAGCTACAACGA ACATAGTG 1285- 6145 UGAGAGC G CGAGCGAG 4109 CTGCTCG GGCTAGCTACAACGA ACATAGTG 1285- 6145 UGAGAGC G CGAGCGAG 4110 CCGCTGCG GGCTAGCTACAACGA CGCTCCA 1285- 6147 AGAGCGAC G CAGCGGGG 4111 CGCCCCTG GGCTAGCTACAACGA TCTCAGGC 6147 AGAGCGAC G CAGCGCGG 4111 GCCCCCTG GGCTAGCTACAACGA TCTCATGC 1286- 6159 GCGACGCA G CGGCGGCC 4112 GCCCCCTG GGCTAGCTACAACGA TCTCATGC 1286- 6155 GCAGCGAG G CGGCCCC 4114 GTGACGCG GGCTAGCTACAACGA CGCTCCT 1286- 6155 GCAGCGGG G CGCACACA 4114 GTGACGCG GGCTAGCTACAACGA CGCCCCC 1286- 6155 GCAGCGGG G CGCACACA 4115 GTGACGG GGCTAGCTACAACGA CGCCCCC 1286- 6157 AGCGGCG G CGCACACA 4116 TTGTGTGA GGCTAGCTACAACGA CGCCCCC 1286- 6152 CGCGCGC A CACAAAUC 4117 GATTGTGG GGCTAGCTACAACGA CACGCCCC 1286- 6164 CGCGUCAC A CAAAUC 4118 AGGATTG GGCTAGCTACAACGA CACGCCCC 1286- 6164 CGCGUCAC A CAAAUC 4118 AGGATTG GGCTAGCTACAACGA CACGACG 1286- 6164 CGCGUCAC A CAAAUC 4119 GAGAGGA GCCTAGCTACAACGA CACGACG 1286- 6164 CCCUCACCA A UCCUCCC 4120 TGGTGAGG GGCTAGCTACAACGA TTGTGTGA 1286- 6164 CCCUCACCA A CACAACA 4120 TGGTGAGG GGCTAGCTACAACGA CTGACGCC 1286- 6164 CCCUCACCA A CACAACA 4120 TGGTGAGG GGCTAGCTACAACGA CTGACGA CTGACGA CTGACCACA 4120 TGGTGAGG GGCTAGCTACAACGA CTGACGA CTGACGA CTGACCACA CTGACCA CTGACCACA CTGACCA CTGACCA CTGACCA CTGACCA CTGACCACA CTGACCACA CTGACCACA CTGACCACA CTGACCACA CTGACCACA CTGACCACA CTGACCACA CTGACCACACA CTGACCACA CTGACCACA CTGACCACACA CTGACCACACA CTGACCACACA CTGACCACACA CTGACCACACA CTGACCACACA CTGACCACACACA CTGACCACACA CTGACCACACA CTGACCACACA CTGACCACACA CTGACCACACA CTGACCACACA CTGACCACACA					
6130	6125	 			
6132	6127	CCCCACGC A CUAUGUGC	4105	GCACATAG GGCTAGCTACAACGA GCGTGGGG	12854
6134 CACUAUGU G CCUGAGA 4108 CTCTCAGG GGCTAGCTACAACGA ACATAGTG 1285' 6145 UGAGAGGG A GCAGGGG 4110 CTCCGGG GGCTAGCTACAACGA TCTCAGGG 1285' 6147 AGAGAGGG A GCAGGGG 4111 CGCGCTGG GGCTAGCTACAACGA CGCTCCA 1285' 6147 AGAGAGGG A GCAGGGGG 4111 CGCCCTGG GGCTAGCTACAACGA GCCTCCA 1285' 6147 AGAGAGGG A GCAGGGGG 4111 CGCCCTGG GGCTAGCTACAACGA GCGCTGCT 1286' 6153 AGCAGAGG G CGGGGGC 4112 GGCCCGG GGCTAGCTACAACGA GTCGCTCC 1286' 6155 AGCAGGGG G GGGGGCC 4113 GACGGCG GGCTAGCTACAACGA GCGTGCT 1286' 6155 AGCAGGGG G GCGGCCC 4113 GACGGCG GGCTAGCTACAACGA GCGCTGCT 1286' 6157 AGCAGCGG G CGCCCAC 4114 GTCACGCG GGCTAGCTACAACGA GCGCGCG 1286' 6158 CGCGGGGC G CUACACCA 4116 TTGTGTAG GGCTAGCTACAACGA GCGCCGC 1286' 6159 CGGCGCC G UCACACAA 4116 TTGTGTAG GGCTAGCTACAACGA GCGCCGC 1286' 6156 CGCGGGIC A CACAAAUC 4117 GATTTGTA GGCTAGCTACAACGA GCGCCCC 1286' 6166 UCACACAA A UCCUCUCC 4119 GGAGAGGA GGCTAGCTACAACGA GTGACCGC 6166 UCACACAA A UCCUCUCC 4119 GGAGAGGA GGCTAGCTACAACGA GTGACCGA 6167 CCCCUCCCA CACACCA 4120 TGGTGAGG GGCTAGCTACAACGA TGGACGA 1286' 6168 CCCCCCCC A UCACCCA 4121 AGTGTAGG GGCTAGCTACAACGA TGGACGA 1286' 6183 CCAGCCUC A CCACACU 4121 AGTGTAGG GGCTAGCTACAACGA GAGGGGG 1286' 6184 CCCCUCCCA CACCACUCU 4121 AGTGTAGG GGCTAGCTACAACGA GAGGGGG 1286' 6185 CCCCCCCC A UCACCCA 4120 TGGTGAGG GGCTAGCTACAACGA GAGGGGG 1286' 6186 GCCUCACC A UCACUCAG 4122 CTGAGTGA GGCTAGCTACAACGA GAGGGGG 1286' 6189 UCACCAUC A UCACUCAG 4122 CTGAGTGA GGCTAGCTACAACGA GAGGGTGG 1286' 6194 AUCACUCA G CUGCUGAG 4122 CTGAGTGA GGCTAGCTACAACGA GAGGGTGG 1286' 6194 AUCACUCA G CUGCUGAG 4122 CTGAGTGA GGCTAGCTACAACGA GAGGTGGT 1287' 6219 ACUCACCA A UCACUCAG 4123 CACCTGAG GGCTAGCTACAACGA GAGGTGAT 1287' 6219 ACUCACCA A UCACUCAG 4124 CTCAGGAG GGCTAGCTACAACGA GAGGTGAT 1287' 6219 ACUCACCA A UCACGCA 4126 TGATGGAG GGCTAGCTACAACGA GAGGTGAT 1286' 6219 ACUCACCAC A UCACCACA 4126 TGATGGAG GGCTAGCTACAACGA GAGGAGT 1286' 6210 GAGGAGG A UCACACAA 4126 TGATGGAG GGCTAGCTACAACGA TGATGAGT 1286' 6221 CUCACACA A UGAGGGA 4127 TCCACTGA GGCTAGCTACAACGA CGCTAGTACA 6221 AUCACCACA A UGAGGGA 4126 TGATGGAG GGCTAGCTACAACGA CCCACACA 1	6130	CACGCACU A UGUGCCUG	4106	CAGGCACA GGCTAGCTACAACGA AGTGCGTG	12855
6142 GCCUGAGA G CGACGCAG 4109 CTGCGTCG GGCTAGCTACAACGA TCTCAGGC 1285: 6145 UGAGAGCG A CCACCGG 4111 CCCCTGC GGCTAGCTACAACGA CCCTTCT 1285: 6147 AGAGCGAC G CAGCGGCG 4111 CGCCGTCG GGCTAGCTACAACGA GTCGCTCT 1286: 6150 GCGACGCA G CGGCGCC 4112 GCGCGCCG GGCTAGCTACAACGA GTCGCTCT 1286: 6153 ACGCAGCG G CGCGGCC 4113 GACGCCGC GGCTAGCTACAACGA TCCGTCCC 1286: 6155 ACGCAGCG C GCGCGCC 4113 GACGCCGC GGCTAGCTACAACGA CCCTCCCT 1286: 6157 AGCGGCGC G CGCGCCC 4113 GTGCACCG GGCTAGCTACAACGA CCCCGCCT 1286: 6158 CGACGGGC G CGCCACAC 4115 GTGCAGCG GGCTAGCTACAACGA GCCGCCTC 1286: 6159 CGGCGCC G CGCACACA 4116 TTGTGTGA GGCTAGCAACGA GCCGCCCT 1286: 6159 CGGCGCC G UCACACA 4116 TTGTGTGA GGCTAGCAACGA GCGCGCCT 1286: 6162 CGGCGUC A CACAAAUC 4117 GATTGTG GGCTAGCTACAACGA GCGCGCCG 1286: 6163 CCGGCGUC A CACAAAUC 4117 GATTGTG GGCTAGCTACAACGA GCGCGCC 1286: 6164 CGCGUCAC A CACAAUCCU 4118 AGGATTTG GGCTAGCTACAACGA TGGACGCG 1286: 6168 UCACACAA A UCCUCUCC 4119 GGAGAGGA GGCTAGCTACAACGA TTGTGTGA 1286: 6178 CCUCUCAC A CCAUCACCA 4120 TGGTGAGG GGCTAGCTACAACGA TGGAGCAG 6183 CCAGCCUC A CCAUCACU 4121 AGTGATGAG GGCTAGCTACAACGA TGGAGCAG 6184 CCUCUCAC A UCACUCAC 4121 AGTGATGAG GGCTAGCTACAACGA TGGAGAGC 1286: 6185 CCUCUCAC A UCACUCAC 4122 TGGTGAG GGCTAGCTACAACGA GAGGCTGG 6189 UCACCAUC A CUCACUCA 4122 CTGAGTGA GGCTAGCTACAACGA GATGGTAC 6189 UCACCAUC A UCACUCAG 4122 CTGATGA GGCTAGCTACAACGA GATGGTAC 6189 UCACCAUC A CUCACUCA 4126 CTCATGA GGCTAGCTACAACGA GATGGTAC 6189 UCACCAUC A UCACUCAG 4126 CTCATGA GGCTAGCTACAACGA GATGGTAC 6189 UCACCAUC A UCACUCAG 4126 CTCATGA GGCTAGCTACAACGA GATGGTAC 6189 UCACCAUC A UCACUCAG 4126 CTCATGA GGCTAGCTACAACGA GATGGTAC 6189 UCACCAUCA A UCACUCAG 4126 CTCATGA GGCTAGCTACAACGA GATGGTACA 6216 CUCAGGGG C UCACAGGA 4126 CTCATGA GGCTAGCTACAACGA GATGGTACA 6217 ACUCACUCA G CUCACAC 4126 CTCATGA GGCTAGCTACAACGA ACCTACAC 6226 CUCAGAGA A UCACUCAC 4126 CTCATGA GGCTAGCTACAACGA GCCT	6132	CGCACUAU G UGCCUGAG	4107	CTCAGGCA GGCTAGCTACAACGA ATAGTGCG	12856
6145 UGAGAGCG A CGCAGCGG 4110 CCGCTGCG GGCTAGCTACAACGA CGCTCTCA 1285: 6147 AGAGCGAC G CAGCGGCG 4111 CGCCGCTG GGCTAGCTACAACGA GTCCGTCTC 1286: 6150 GCGAGCGA G CGGCGCGC 4112 GCCGGCG GGCTAGCTACAACGA TGCGTCCC 1286: 6153 ACGCAGCG G CGCGGCGC GGCTAGCTACAACGA TGCGTCCC 1286: 6155 GCAGCGGC G CGCGGCGC GGCTAGCTACAACGA CGCCTGCT 1286: 6155 GCAGCGGC G CGCGCGCC 4114 GTGACGCG GGCTAGCTACAACGA CGCCGCTC 1286: 6157 AGCGGCGC G CGCGCACACA 4114 GTGACGCG GGCTAGCTACAACGA GCCCGCCT 1286: 6157 AGCGGCGC G UCACACAA 4116 TTGTGTGA GGCTAGCTACAACGA GCCGCGCT 1286: 6159 CGGCGCC G UCACACAA 4116 TTGTGTGA GGCTAGCTACAACGA GCGCGCCG 1286: 6159 CGGCGCC A CACAAAUC 4117 GATTTGT GGCTAGCTACAACGA GCGCGCCG 1286: 6164 CGCGCUCAC A CACAAUCCU 4118 AGGATTTG GGCTAGCTACAACGA GACGCGC 1286: 6168 UCACACAA A UCCUCUCC 4119 GGAGAGGA GGCTAGCTACAACGA TTGTGTCA 1286: 6168 UCACACAA A UCCUCUCC 4119 GGAGAGGA GGCTAGCTACAACGA TTGTGTCA 1286: 6183 CCAGCCUCA C CAUCACU 4121 AGTGATGG GGCTAGCTACAACGA TTGTGTCA 1286: 6186 CCCUCACC A UCACCUCA 4120 TGGTGAGG GGCTAGCTACAACGA TTGTGTCA 1286: 6186 GCCUCACC A UCACCUCA 4122 CTGAGTGA GGCTAGCTACAACGA GGGCGCCC 1286: 6186 GCCUCACC A UCACCUCA 4122 CTGAGTGA GGCTAGCTACAACGA GGGGCTCG 1287: 6186 GCCUCACC A UCACCUCA 4122 CTGAGTGA GGCTAGCTACAACGA GGTGAGCTCG 1287: 6197 ACUCACUCA CUCACCU 4123 CAGCTGAG GGCTAGCTACAACGA GATGGTGA 1287: 6194 AUCACUCA G CUCCACCA 4122 CTGAGTGA GGCTAGCTACAACGA GATGGTGA 1287: 6197 ACUCACUCA CUCACCU 4123 CAGCTCAG GGCTAGCTACAACGA GATGGTGA 1287: 6197 ACUCACUCA CUCACCUCA 4126 CTCCTCAG GGCTAGCTACAACGA GATGGTGA 1287: 6215 CUCCAUCA G UGGAGGAG 4125 CTCCTCAG GGCTAGCTACAACGA ACCTGAT 1287: 6216 CUCAUCA G UGGAGGAG 4127 CTCCTCAG GGCTAGCTACAACGA ACCTGAT 1287: 6229 CAAUGAGG G UGCAUCAC 4126 TGATGGAG GGCTAGCTACAACGA CACTGAT 1287: 6229 CAAUGAGG A UCACUCAC 4126 TGATGGAG GGCTAGCTACAACGA CACTGAT 1287: 6221 GUGAGCA G UGAGCAGA 4127 TCCACTGA GGCTAGCTACAACGA CACTGAT 1288: 6229 CAAUGAGG A UCACUCAC 4131 TGGAGCAG GGCTAGCTACAACGA ACCTGAT 1288: 6229 CAAUGAGG A CUCACCC 4131 TGGAGCAG GGCTAGCTACAACGA CACCTCATTCA 1289: 6229 CAAUGAGG A CUCACCC 4131 TGGAGCAG GGCTAGCTACAACG	6134	CACUAUGU G CCUGAGAG	4108	CTCTCAGG GGCTAGCTACAACGA ACATAGTG	12857
6147 AGAGCGAC G CAGCGGCG 4111 CGCCGCTG GGCTAGCTACAACGA GTCGCTCT 1286: 6150 GGCAGCGC G CGGCGCGC 4112 GCCGCGCG GGCTAGCTACAACGA TCCCTCCC 6153 ACCGAGCG G CGGCGCC 4113 GAGCGCGC GGCTAGCTACAACGA TCCCTCCCT 1286: 6155 GCAGCGGC G CGCGUCAC 4114 GTGACGCG GGCTAGCTACAACGA CCCTCCCT 1286: 6157 ACCGGCGC G CGCUCACAC 4115 GTGTGACG GGCTAGCTACAACGA GCCCGCTGC 1286: 6158 CGCGCGCG C UCACACAC 4116 TTGTGTGA GGCTAGCTACAACGA GCCCGCTG 6159 CGGCGGC G UCACACAC 4116 TTGTGTGA GGCTAGCTACAACGA GCCCGCCG 6162 CGCGCGCC A CACAAAUC 4117 GATTTGTG GGCTAGCTACAACGA GCCCGCCG 6168 UCACACAA A UCCUCUCC 4119 GGAGAGGA GGCTAGCTACAACGA GTGACGCG 6168 UCACACAA A UCCUCUCC 4119 GGAGAGGA GGCTAGCTACAACGA TTGTGTGA 6168 UCACACAA A UCCUCUCC 4119 GGAGAGGA GGCTAGCTACAACGA TTGTGTGA 6186 CCUCACCA A CACACCCU 4120 TGGTGAGG GGCTAGCTACAACGA TTGTGTGA 6186 GCCUCACC A UCACUCAC 4121 AGTGATGG GGCTAGCTACAACGA TTGTGTGA 6186 GCCUCACC A UCACUCAC 4121 AGTGATGG GGCTAGCTACAACGA TTGTGTGA 6186 GCCUCACC A UCACUCAC 4122 CTGAGTGA GGCTAGCTACAACGA GAGGGTGG 6186 GCCUCACC A UCACUCAG 4123 CACCTAGG GGCTAGCTACAACGA GAGGGTGG 6187 UCACCAUC A CUCACCUC 4121 AGTGATGG GGCTAGCTACAACGA GAGGGTGG 6189 UCACCAUC A UCACUCAG 4122 CTGAGTGA GGCTAGCTACAACGA GATGGTGA 6189 UCACCAUC A CUCACCUC 4123 CACCTAGG GGCTAGCTACAACGA GATGGTGA 6189 UCACCAUC A CUCACCUC 4123 CACCTAGG GGCTAGCTACAACGA GATGGTGA 6189 UCACCAUC A CUCACCUC 4121 CACCTAGGA GGCTAGCTACAACGA GATGGTGA 6189 UCACCAUC A CUCACCUC 4122 CTGAGTGA GGCTAGCTACAACGA GATGGTGA 6189 UCACCAUC A CUCACCUC 4123 CACCTAGG GGCTAGCTACAACGA GATGGTGA 6189 UCACCAUC A CUCACCUC 4123 CACCTAGG GGCTAGCTACAACGA GATGGTGA 6206 CUCAACCA UCACUCAG 6125 CUCCAUCA G CUGACGAG 6126 CUCACCACCA GCCCACGA 6127 CTCACTAG GGCTAGCTACAACGA TCACTCCAG 6215 CUCCAUCA G UGGAGAG 6126 CUCACCCA GCCCACGA 6126 CUCACCCA GCCCACGA 6127 CACCACCA GCCCACGA 6128 CCCACCACCA GCCACGACA 6128 CCCACCACCA GCCACCACA 6128 CCCACCACCA GCCACCACA 6128 CCCACCACCA GCCACCACA 6129 CAAUGAGGA CUCACAC 6129 CAAUGAGGA CUCACAC 6129 CAAUGAGGA CUCACAC 6129 CAAUGAGGA CUCACAC 6129 CACCACCACACA CCCCACCACACA 6128 CCCCACACACA GCCTAGCTACAACGA CCCTCCCACACA 6231	6142	GCCUGAGA G CGACGCAG	4109	CTGCGTCG GGCTAGCTACAACGA TCTCAGGC	12858
6150 GCGACGCA G CGGCGGC	6145	UGAGAGCG A CGCAGCGG	4110	CCGCTGCG GGCTAGCTACAACGA CGCTCTCA	12859
6153 ACGCAGGG G CGGGGUC 4113 GAGGGGG GGCTAGCTACAACGA CGCTGCGT 1286: 6155 GRAGGGG G CGCGUCAC 4114 GTGACGG GGCTAGCTACAACGA GCGCCTGC 1286: 6157 AGCGGCGG G CGUCACAC 4115 GTGTGACG GGCTAGCTACAACGA GCGCCGCT 1286: 6159 CGGCGGGC G UCACACA 4115 GTGTGACG GGCTAGCTACAACGA GCGCCGCT 1286: 6159 CGGCGGC G UCACACA 4116 TTGTGTGA GGCTAGCTACAACGA GCGCCGC 1286: 6162 CGCGUCAC A CACAAAUCU 4117 GATTTGTG GGCTAGCTACAACGA GCGCCGC 1286: 6164 CGCGUCAC A CACAAAUCU 4118 AGGATTTG GGCTAGCTACAACGA GTGACGCG 1286: 6168 UCACACAA A UCCUCUCC 4119 GGAGAGGA GGCTAGCTACAACGA TTGTGTGA 1286: 6168 UCACACAA A UCCUCUCC 4119 GGAGAGGA GGCTAGCTACAACGA TTGTGTGA 1286: 6188 CCACCCAA A UCCUCACC 4120 TGGTGAGG GGCTAGCTACAACGA TTGTGTGA 1286: 6188 CCACCCAC 4120 TGGTGAGG GGCTAGCTACAACGA GAGGCTGG 1287: 6189 UCACCAUC A CCAUCACU 4121 AGTGATGA GGCTAGCTACAACGA GAGGCTGG 1287: 6189 UCACCAUC A CCAUCACU 4122 CTGATGA GGCTAGCTACAACGA GAGGCTGG 1287: 6189 UCACCAUC A CUCAGCUG 4123 CAGCTAGA GGCTAGCTACAACGA GATGGTGA 1287: 6194 AUCACUCA G CUGCUGAG 4124 CTCAGCAG GGCTAGCTACAACGA GATGGTGA 1287: 6197 ACUCAGCU G CUGAGGAG 4125 CTCCTCAG GGCTAGCTACAACGA GATGGTGA 1287: 6216 CUCACCC A UCACUCAC 4126 TGATGGAG GGCTAGCTACAACGA GATGGTGA 1287: 6216 CUCACCC A UCAGUGAG 4127 TCCACTGA GGCTAGCTACAACGA GGAGCCTC 1287: 6216 CUCACUCA G UGGAUCA 4128 TTGATCCA GGCTAGCTACAACGA GGAGCCTC 1287: 6215 CUCCAUCA G UGGAUCAA 4128 TTGATCCA GGCTAGCTACAACGA TGATGGAG 1287: 6223 GUGGAUCA A UGAGGGAC 4128 TTCATTGA GGCTAGCTACAACGA TGATGGAG 1287: 6223 GUGGAUCA A UGAGGGAC 4128 TTCATTGA GGCTAGCTACAACGA TGATCGAT 1287: 6223 GUGGAUCA A UGAGGGAC 4128 TTGATCCA GGCTAGCTACAACGA TGATCCAC 1287: 6223 GUGGAUCA A UGAGGGAC 4128 TTGATCCA GGCTAGCTACAACGA TGATCCAC 1287: 6223 GUGGAUCA A UGAGGGAC 4131 TGGAGCAG GGCTAGCTACAACGA GGCTCCTCA 1288: 6224 UCCACGCC A UGAUGAG 4128 GCTGGGAA GGCTAGCTACAACGA ACCCTGAT 1288: 6224 UCCACGCC A UGAUGAG 4131 GCC	6147	AGAGCGAC G CAGCGGCG	4111	CGCCGCTG GGCTAGCTACAACGA GTCGCTCT	12860
6155 GCAGCGGC G CGUCACA 4114 GTGACGC GGCTAGCTACAACGA GCCGCTGC 1286- 6157 AGCGGCGC G CGUCACAC 4115 GTGTGAC GGCTAGCTACAACGA GCGCCGCT 1286- 6159 CGGCGCGC G UCACACAA 4116 TTGTGTGA GGCTAGCTACAACGA GCGCCGCC 1286- 6162 CGGCGCCG C ACACACAA 4116 TTGTGTGA GGCTAGCTACAACGA GCCCGCC 1286- 6162 CGGCGUCA C CACAAUCCU 4118 AGGATTG GGCTAGCTACAACGA GCCGCGC 1286- 6164 CGCGUCAC A CACAAUCCU 4118 AGGATTG GGCTAGCTACAACGA GTGACGC 1286- 6168 UCACACAA A UCCUCUCC 4119 GGAGAGGA GGCTAGCTACAACGA GTGACGC 1286- 6178 CCUCUCCA G CCUCACCA 4120 TGGTGAGG GGCTAGCTACAACGA GTGACGC 1286- 6183 CCAGCCUC A CCAUCACU 4121 AGTGATGG GGCTAGCTACAACGA GAGGGCTG 6184 CCUCUCAC A UCACUCAG 4122 TGGTGAGG GGCTAGCTACAACGA GAGGGCTG 6185 CCUCACC A UCACUCAG 4122 CTGAGTGA GGCTAGCTACAACGA GAGGGCTG 6186 GCCUCACC A UCACUCAG 4122 CTGAGTGA GGCTAGCTACAACGA GATGGGC 1287- 6187 AUCACAUC A CUCAGCUG 4123 CAGCTGAG GGCTAGCTACAACGA GATGGGC 1287- 6189 UCACCAUC A CUCAGCUG 4123 CAGCTGAG GGCTAGCTACAACGA GATGGTGA 1287- 6194 AUCACUCA G CUGAGGAG 4124 CTCAGCAG GGCTAGCTACAACGA GATGGTGA 1287- 6197 ACUCAGCU G CUGAGGAG 4125 CTCCTCAG GGCTAGCTACAACGA TGAGTGAT 1287- 6206 CUGAGGAG CUCCAUCA 4126 TGATGGAG GGCTAGCTACAACGA AGCTGAGT 1287- 6211 GAGGCUCC A UCAGUGA 4127 TCCACTGA GGCTAGCTACAACGA AGCTGAGT 1287- 6221 GAGGCUCC A UCAGUGA 4126 TGATGGAG GGCTAGCTACAACGA TGATGGAG 1287- 6221 GUGAUCA A UGAGGAG 4127 TCCACTGA GGCTAGCTACAACGA TGATGGAG 1287- 6223 GUGAUCA A UGAGGACU 4136 AGTCCTCA GGCTAGCTACAACGA GAGCCTC 1287- 6229 CAAUGAGG A UCAAUGAG 4127 TCCACTGA GGCTAGCTACAACGA TGATGGAG 1287- 6229 CAAUGAGG A CUCCACCC 4132 GCTGGGAG GGCTAGCTACAACGA CCTCTATT 1286- 6223 UGAGGACU A UGAGGACU 4130 AGTCCTCA GGCTAGCTACAACGA CACCTCAT 6229 CAAUGAGG A CUCCACCC 4132 GCTGGGAG GGCTAGCTACAACGA CCTCATT 1286- 6237 ACUGCUCC A CGCCUUCA 4131 TGGAGCAG GGCTAGCTACAACGA AGTCCTCA 1287- 6229 CAAUGAGG A CUCCACCC 4132 GACGAGCAG GGCTAGCTACAACGA AGTCCTCA 1286- 6237 ACUGCUCC A CGCCUUCAG 4134 GACATGG GGCTAGCTACAACGA AGTCCTCA 1286- 6238 UGGGUCCA A UGAGGGA 4136 CCCACAG GGCTAGCTACAACGA AGCCCTGAC 6250 AUGUCCCA C CCCAUGCC 4136 GCCACAG GGCTAGCTACAACGA AGCCCTCA 128	6150	GCGACGCA G CGGCGCGC	4112	GCGCGCCG GGCTAGCTACAACGA TGCGTCGC	12861
6157 AGCGGCGC G CGUCACACA 4115 GTGTGACG GGCTAGCTACAACGA GCGCCGCT 12866 6159 CGGCGCGC G UCACACAA 4116 TTGTGTGA GGCTAGCTACAACGA GCGCCGC 12866 6162 CGCGCGUC A CACAAAUC 4117 GATTTGTG GGCTAGCTACAACGA GCGCGCG 12866 6164 CGCGUCAC A CACAAUC 4117 GATTTGTG GGCTAGCTACAACGA GCGCGCG 12866 6168 UCACACAA A UCCUCUCC 4119 GGAGAGGA GGCTAGCTACAACGA GTGACCACGA 12866 6178 CCUCUCCA G CCUCACCA 4120 TGGTGAGG GGCTAGCTACAACGA TTGTGTGA 12866 6183 CCAGCCUC A CCACACACU 4121 AGTGATGG GGCTAGCTACAACGA TTGTGTGA 12866 6183 CCCCCAC A UCACUCAG 4121 AGTGATGG GGCTAGCTACAACGA TGGAGAGG 12867 6186 GCCUCACC A UCACUCAG 4122 CTGAGTGA GGCTAGCTACAACGA GAGGCTGG 12877 6189 UCACCAUC A CUCAGCUG 4123 CAGCTGAG GGCTAGCTACAACGA GAGGCTGG 12877 6189 UCACCAUC A CUCAGCUG 4123 CAGCTGAG GGCTAGCTACAACGA GAGGCTGG 12877 6197 ACUCAGCU G CUGAGGAG 4124 CTCAGCAG GGCTAGCTACAACGA GATGGTGA 12877 6219 AUCACUCA G CUGCUGAG 4125 CTCCTCAG GGCTAGCTACAACGA GAGTGGTA 12877 6210 CUGAGGAG G CUCAUCA 4126 TGATGGAG GGCTAGCTACAACGA AGCTGAGT 12877 6211 GAGGCUCC A UCAGUGGA 4127 TCCCCTCAG GGCTAGCTACAACGA CTCCTCAG 12877 6211 GAGGCUCC A UCAGUGGA 4128 TGATGCAG GGCTAGCTACAACGA CTCCTCAG 12877 6212 AUCAGUGG UGGAUCAA 4128 TTGATCCA GGCTAGCTACAACGA TGATGGAG 12877 6223 GUGGAUCA A UGAGGACU 4130 AGTCCTCA GGCTAGCTACAACGA TGATGGAG 12877 6223 GUGGAUCA A UGAGGACU 4130 AGTCCTCA GGCTAGCTACAACGA TGATGGAG 12877 6229 CAAUGAGG A UCAAUGAG 4129 CTCATTGA GGCTAGCTACAACGA TGATGGAG 12887 6229 CAAUGAGG A CUCCUCCA 4131 TGGAGCAG GGCTAGCTACAACGA TGATCCAC 12876 6232 UGAGGACU G UCCAUCCA 4131 TGGAGCAG GGCTAGCTACAACGA AGTCCCAC 12867 6232 UGAGGACU G UCCCACCC 4132 GCGTGGGG GGCTAGCTACAACGA AGTCCCAC 12867 6232 UGAGGACU G UCCCACCC 4132 GCGTGGGG GGCTAGCTACAACGA AGTCCCAC 12867 6232 UGAGGACU G UCCCACCC 4132 GCGTGGGG GGCTAGCTACAACGA AGTCCCAC 12867 6234 UCCCACCCC A UGUUCCGG 4132 GCGTGGGG GGCTAGCTACAACGA AGTCCCAC 12867 6235 ACUGCUCCG C CAUGUUC 4134 GACCTGG GGCTAGCTACAACGA AGTCCCAC 12867 6236 UGCGCCC G UCCAGGCC 4136 GCCTAGCTACAACGA GGCTAGCTACAACGA CCCACCACCACCACCACCACCACCACCACCACCACCAC	6153	ACGCAGCG G CGCGCGUC	4113	GACGCGCG GGCTAGCTACAACGA CGCTGCGT	12862
CGGCGCGC G UCACACAA 4116	6155	GCAGCGGC G CGCGUCAC	4114	GTGACGCG GGCTAGCTACAACGA GCCGCTGC	12863
6162 CGCGCGUCA CACADAUC 4117 GATTTGTG GGCTAGCTACAACGA GACGCGCG 12866 6164 CGCGUCAC A CADAUCCU 4118 AGGATTTG GGCTAGCTACAACGA GTGACGCG 12866 6168 UCACACAA A UCCUCUCC 4119 GGAGAGGA GGCTAGCTACAACGA TTGTGTGA 12866 6178 CCUCUCCA G CCUCACCA 4120 TGGTGAG GGCTAGCTACAACGA TGGAGAGG 12866 6183 CCAGCCUC A CCAUCACU 4121 AGTGATGA GGCTAGCTACAACGA TGGAGAGG 12866 6183 CCAGCCUC A UCACUCAC 4122 CTGAGTGA GGCTAGCTACAACGA GAGGCTGG 12876 6186 GCCUCACC A UCACUCAG 4122 CTGAGTGA GGCTAGCTACAACGA GAGGCTGG 12876 6187 UCACCAUC A CUCAGCUG 4123 CAGCTGAG GGCTAGCTACAACGA GATGGTGA 12876 6189 UCACCAUC A CUCAGCUG 4124 CTCAGCAG GGCTAGCTACAACGA GATGGTGA 12877 6194 AUCACUCA G CUGCUGAG 4124 CTCAGCAG GGCTAGCTACAACGA GATGGTGA 12877 6206 CUGAGGAG G CUCCAUCA 4125 CTCCTCAG GGCTAGCTACAACGA GATGGTGA 12877 6206 CUGAGGAG G CUCCAUCA 4126 TGATGGAG GGCTAGCTACAACGA TGAGTGAT 12877 6211 GAGGCUCC A UCAGUGGA 4127 TCCACTGA GGCTAGCTACAACGA GGAGCCTC 12876 6212 CUCCAUCA G UGAUGAA 4127 TCCACTGA GGCTAGCTACAACGA TGATGGAG 12877 6213 GUGGAUCA A UCAGUGGA 4127 TCCACTGA GGCTAGCTACAACGA TGATGGAG 12877 6229 CAAUGAGG A UCAAUGAG 4129 CTCATTGA GGCTAGCTACAACGA TGATGGAG 12877 6223 GUGGAUCA A UGAGGACU 4130 AGTCCTCA GGCTAGCTACAACGA TCATGGAG 12876 6232 UGAGGACU G CUCCACCC 4132 GCGTGGAG GGCTAGCTACAACGA CCACTGAT 12876 6232 UGAGGACU G CUCCACCC 4132 GCGTGGAG GGCTAGCTACAACGA CCTCATTG 12886 6233 UGCUCCAC G CCAUGUU 4134 GAACATGG GGCTAGCTACAACGA AGTCCTCA 12886 6234 UCCACGCC A UGUUCCGG 4135 CCGGAACA GGCTAGCTACAACGA AGTCCTCA 12886 6235 UCCACCGC A UGUUCCGG 4136 GACCAGGA GGCTAGCTACAACGA AGTCCTCA 12886 6244 CACGCCAU G UUCCAGCC 4136 GACCAGAG GGCTAGCTACAACGA AGTCCTCA 12886 6256 GCUAAGGG A UGUUCGG 4136 GCCCACAGAG GGCTAGCTACAACGA AGTCCTCA 12886 6257 ACUGCUCG G CCAUGUUC 4134 GAACATGG GGCTAGCTACAACGA AGTCCTCA 12886 6256 GCUAAGGG A UGUUCGG 4136 GCCCACAGAG GGCTAGCACACGA CCCTATGC 12886 6257 UAAGGGAU G UUCCAGCC 4137 GCCACGAG GGCTAGCTACAACGA AGCCGTGGA 12886 6256 GCUAAGGG A UGUUCGG 4136 GCCCACACAG GGCTAGCTACAACGA ACCGAGCC 12886 6257 UAAGGGA A UGAGGGA 4141 GCCCAAACA GGCTAGCAACAA ACCGAGCC 12886 6256 GGUAAGGG A UGUUGG	6157	AGCGGCGC G CGUCACAC	4115	GTGTGACG GGCTAGCTACAACGA GCGCCGCT	12864
6164 CGCGUCAC A CAAAUCCU 4118 AGGATTTG GGCTAGCTACAACGA GTGACGCC 1286-6168 UCACACAA A UCCUCUCC 4119 GGAGAGGA GGCTAGCTACAACGA TTGTTGTA 1286-6178 CCUCUCCA G CCUCACCA 4120 TGGTGAG GGCTAGCTACAACGA TTGTGTGA 1286-6183 CCAGCCUC A CCAUCACU 4121 AGTGATGG GGCTAGCTACAACGA GAGGCTGG 1287-6186 GCCUCACC A UCACUCAG 4122 CTGAGTGA GGCTAGCTACAACGA GAGGCTGG 1287-6189 UCACCAUC A CUCAGCUG 4122 CTGAGTGA GGCTAGCTACAACGA GAGGTGG 1287-6189 UCACCAUC A CUCAGCUG 4123 CAGCTGAG GGCTAGCTACAACGA GATGGTGA 1287-6194 AUCACUCA G CUGCUGAG 4124 CTCAGCAG GGCTAGCTACAACGA GATGGTGA 1287-6194 AUCACUCA G CUGAGGAG 4125 CTCCTCAG GGCTAGCTACAACGA GATGGTGA 1287-6194 AUCACUCA G CUGAGGAG 4125 CTCCTCAG GGCTAGCTACAACGA AGCTGAGT 1287-6206 CUGAGGAG G CUCCAUCA 4126 TGATGGAG GGCTAGCTACAACGA CTCCTCAG 1287-6211 GAGGCUCC A UCAGUGGA 4127 TCCACTGA GGCTAGCTACAACGA CTCCTCAG 1287-6215 CUCCAUCA G UGGAUGAA 4128 TTGATCCA GGCTAGCTACAACGA TGATGGAG 1287-6215 CUCCAUCA G UGGAUGAA 4128 TTGATCCA GGCTAGCTACAACGA TGATGGAG 1287-6219 AUCAGUGG A UCAAUGAG 4129 CTCATTGA GGCTAGCTACAACGA TGATGGAG 1287-6223 GUGGAUCA A UGAGGACU 4130 AGTCCTCA GGCTAGCTACAACGA CCACTGAT 1287-6223 GUGGAUCA A UGAGGACU 4131 TGGAGCAG GGCTAGCTACAACGA CCACTGAT 1287-6223 UGAGGACU G CUCCACGC 4132 GCGTGGAG GGCTAGCTACAACGA AGTCCCA 1288-6239 UGCUCCAC A CCCCAUGUU 4133 ACATGGCG GGCTAGCTACAACGA AGTCCCA 1288-6239 UGCUCCAC A CCCCAUGUU 4133 ACATGGC GGCTAGCTACAACGA AGTCCCA 1288-6239 UGCUCCAC A CCCAUGUU 4134 GACCATGG GGCTAGCTACAACGA AGTCCCA 1288-6239 UGCUCCAC A CCCAUGUU 4136 AGCAGTG GGCTAGCTACAACGA AGTCCCA 1288-6230 UGCUCCAC C CCAUGUUC 4136 AGCAGTG GGCTAGCTACAACGA AGTGCTCA 1288-6242 UCCACGCC A UGUUCCGG 4135 CCGGAACA GGCTAGCTACAACGA AGTGCTCA 1288-6242 UCCACGCC A UGUUCCGG 4135 CCGGAACA GGCTAGCTACAACGA AGGCCGAACAT 1288-6242 UCCACGCC A UGUUCCGG 4136 ACCCTGAA GGCTAGCTACAACGA AGGCCGAA GCCGAACAT 1288-625-625 GCUGUGG C UUGAGGAC 4136 CCCAAACA GGCTAGCTACAACGA CCGAGCC 1288-625-625 GCUGUG G UUGAGGAC 4141 GCCCCAAACA GGCTAGCTACAACGA CCGAGCC 1288-625-625 GCUGUG G UUGAGGAC 4141 GCCCCAAACA GGCTAGCTACAACGA CCCAACAC 1289-625-625-625-625-625-625-625-625-62	6159	CGGCGCGC G UCACACAA	4116	TTGTGTGA GGCTAGCTACAACGA GCGCGCCG	12865
6168 UCACACAA A UCCUCUCC 4119 GGAGAGGA GGCTAGCTACAACGA TTGTGTGA 12866 6178 CCUCUCCA G CCUCACCA 4120 TGGTGAG GGCTAGCTACAACGA TGGAGAGG 12867 6183 CCAGCCUC A CCAUCACU 4121 AGTGATGG GGCTAGCTACAACGA AGGGCTGG 12876 6186 GCCUCACC A UCACUCAG 4122 CTGAGTGA GGCTAGCTACAACGA GGGGGGC 12876 6189 UCACCAUC A CUCAGCUG 4123 CAGCTGAG GGCTAGCTACAACGA GGTGAGGC 12876 6194 AUCACCUCA G CUGCUGAG 4124 CTCAGCAG GGCTAGCTACAACGA GATGGTGA 12876 6195 ACUCAGCU G CUGCAGGA 4125 CTCCTCAG GGCTAGCTACAACGA GATGGTGA 12876 6206 CUGAGGAG G CUCCAUCA 4126 TGATGGAG GGCTAGCTACAACGA AGCTGAGT 12876 6211 GAGGCUCC A UCAGUGGA 4127 TCCACTGA GGCTAGCTACAACGA AGCTGAGT 12876 6212 GAGGCUC A UCAGUGA 4127 TCCACTGA GGCTAGCTACAACGA TGATGAG 12876 6213 GUGGAGAG G CUCCAUCA 4126 TGATGGAG GGCTAGCTACAACGA TGATGAG 12876 6214 GAGGCUC A UCAGUGGA 4127 TCCACTGA GGCTAGCTACAACGA TGATGGAG 12876 6215 CUCCAUCA G UGGAUCAA 4128 TTGATCCA GGCTAGCTACAACGA TGATGGAG 12876 6226 GUGAGGA A UCAAUGAG 4129 CTCATTGA GGCTAGCTACAACGA TGATGGAG 12876 6227 GUGAGGAC A UGAGGGA 4129 CTCATTGA GGCTAGCTACAACGA TGATGGAC 12876 6228 GUGAGUCA A UGAGGACU 4130 AGTCCTCA GGCTAGCTACAACGA TGATCCAC 12876 6229 CAAUGAGG A CUGCUCCA 4131 TGAGCAG GGCTAGCTACAACGA AGTCCTCA 12876 6232 UGAGGACU G CUCCACGC 4132 GCGTGGGAG GGCTAGCTACAACGA AGTCCTCA 12886 6233 ACUGCUCC A CGCCAUGU 4133 ACATGGGG GGCTAGCTACAACGA AGTCCTCA 12886 6234 ACUGCUCC A CGCCAUGU 4134 GAACATGG GGCTAGCTACAACGA AGTCCTCA 12886 6235 ACUGCUCCA C CCAUGUUC 4134 GAACATGG GGCTAGCTACAACGA AGTCCTCA 12886 6240 UCCACGCC Q UUCCGGC 4135 CCGGAACA GGCTAGCTACAACGA AGTCCTCA 12886 6241 CACGCCAUG UUCCGGC 4136 AGCCGGAA GGCTAGCTACAACGA AGGCCGTGGA 12886 6250 AUGUUCCGG C UCCAGGC 4136 AGCCGGAA GGCTAGCTACAACGA AGGCCGGA 12886 6251 GCUAAGGG A UUCUGGG 4136 AGCCGGAA GGCTAGCTACAACGA AGGCCGGGA 12886 6251 UCCGGCUC G UGGGUAAG 4141 GTCCCAAA GGCTAGCTACAACGA CCGAGCC 12886 6252 UCCAGGCC A UGUUGGG 4144 CCCCAAACA GGCTAGCTACAACGA CCGAGCC 12886 6253 CUGGAACG A UGUUGGG 4144 ACCGTGCAA GGCTAGCTACAACGA CCCTAACC 12886 6254 UCCGGCUC G UGGGUAAG 4141 GTCCCAAA GGCTAGCTACAACGA CCCTAACC 12886 6255 GGUAAGGG A UGUUGGG 41	6162	CGCGCGUC A CACAAAUC	4117	GATTIGTG GGCTAGCTACAACGA GACGCGCG	12866
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	6294	CGGUGUUG A CUGACUUC	4149	GAAGTCAG GGCTAGCTACAACGA CAACACCG	12898
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			4153	AGCTTGGA GGCTAGCTACAACGA TGAAGCCA	12902
6323 CAGUCCAA G CUCCUGCC 4154 GGCAGGAG GGCTAGCTACAACGA TTGGACTG 1290	6323	CAGUCCAA G CUCCUGCC	4154	GGCAGGAG GGCTAGCTACAACGA TTGGACTG	12903
6329 AAGCUCCU G CCGCGGUU 4155 AACCGCGG GGCTAGCTACAACGA AGGAGCTT 12904	6329	AAGCUCCU G CCGCGGUU	4155	AACCGCGG GGCTAGCTACAACGA AGGAGCTT	12904

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6332	CUCCUGCC G CGGUUGCC	4156	GGCAACCG GGCTAGCTACAACGA GGCAGGAG	12905
6335	CUGCCGCG G UUGCCGGG	4157	CCCGGCAA GGCTAGCTACAACGA CGCGGCAG	12906
6338	CCGCGGUU G CCGGGAGU	4158	ACTCCCGG GGCTAGCTACAACGA AACCGCGG	12907
6345	UGCCGGGA G UCCCUUUC	4159	GAAAGGGA GGCTAGCTACAACGA TCCCGGCA	12908
6359	UUCUUCUC A UGCCAACG	4160	CGTTGGCA GGCTAGCTACAACGA GAGAAGAA	12909
6361	CUUCUCAU G CCAACGUG	4161	CACGTTGG GGCTAGCTACAACGA ATGAGAAG	12910
6365	UCAUGCCA A CGUGGGUA	4162	TACCCACG GGCTAGCTACAACGA TGGCATGA	12911
6367	AUGCCAAC G UGGGUACA	4163	TGTACCCA GGCTAGCTACAACGA GTTGGCAT	12912
6371	CAACGUGG G UACAGGGG	4164	CCCCTGTA GGCTAGCTACAACGA CCACGTTG	12913
6373	ACGUGGGU A CAGGGGGG	4165	CCCCCTG GGCTAGCTACAACGA ACCCACGT	12914
6381	ACAGGGG G UCUGGCGG	4166	CCGCCAGA GGCTAGCTACAACGA CCCCCTGT	12915
6386	GGGGUCUG G CGGGGAGA	4167	TCTCCCCG GGCTAGCTACAACGA CAGACCCC	12916
6394	GCGGGGAG A CGGUAUCA	4168	TGATACCG GGCTAGCTACAACGA CTCCCCGC	12917
6397	GGGAGACG G UAUCAUGC	4169	GCATGATA GGCTAGCTACAACGA CGTCTCCC	12918
6399	GAGACGGU A UCAUGCAA	4170	TTGCATGA GGCTAGCTACAACGA ACCGTCTC	12919
6402	ACGGUAUC A UGCAAACC	4171	GGTTTGCA GGCTAGCTACAACGA GATACCGT	12920
6404	GGUAUCAU G CAAACCAC	4172	GTGGTTTG GGCTAGCTACAACGA ATGATACC	12921
6408	UCAUGCAA A CCACCUGC	4173	GCAGGTGG GGCTAGCTACAACGA TTGCATGA	12922
6411	UGCAAACC A CCUGCCCA	4174	TGGGCAGG GGCTAGCTACAACGA GGTTTGCA	12923
6415	AACCACCU G CCCAUGCG	4175	CGCATGGG GGCTAGCTACAACGA AGGTGGTT	12924
6419	ACCUGCCC A UGCGGAGC	4176	GCTCCGCA GGCTAGCTACAACGA GGGCAGGT	12925
6421	CUGCCCAU G CGGAGCGC	4177	GCGCTCCG GGCTAGCTACAACGA ATGGGCAG	12926
6426	CAUGCGGA G CGCAGAUC	4178	GATCTGCG GGCTAGCTACAACGA TCCGCATG	12927
6428	UGCGGAGC G CAGAUCAC	4179	GTGATCTG GGCTAGCTACAACGA GCTCCGCA	12928
6432	GAGCGCAG A UCACUGGA	4180	TCCAGTGA GGCTAGCTACAACGA CTGCGCTC	12929
6435	CGCAGAUC A CUGGACAU	4181	ATGTCCAG GGCTAGCTACAACGA GATCTGCG	12930
6440	AUCACUGG A CAUGUCAA	4182	TTGACATG GGCTAGCTACAACGA CCAGTGAT	12931
6442	CACUGGAC A UGUCAAGA	4183	TCTTGACA GGCTAGCTACAACGA GTCCAGTG	12932
6444	CUGGACAU G UCAAGAAC	4184	GTTCTTGA GGCTAGCTACAACGA ATGTCCAG	12933
6451	UGUCAAGA A CGGUUCCA	4185	TGGAACCG GGCTAGCTACAACGA TCTTGACA	12934
6454	CAAGAACG G UUCCAUGA	4186	TCATGGAA GGCTAGCTACAACGA CGTTCTTG	12935
6459	ACGGUUCC A UGAGGAUC	4187	GATCCTCA GGCTAGCTACAACGA GGAACCGT	12936
6465	CCAUGAGG A UCGUCGGG	4188	CCCGACGA GGCTAGCTACAACGA CCTCATGG	12937
6468	UGAGGAUC G UCGGGCCU	4189	AGGCCCGA GGCTAGCTACAACGA GATCCTCA	12938
6473	AUCGUCGG G CCUAAGAC	4190	GTCTTAGG GGCTAGCTACAACGA CCGACGAT	12939
6480	GGCCUAAG A CCUGUAGC	4191	GCTACAGG GGCTAGCTACAACGA CTTAGGCC	12940
6484	UAAGACCU G UAGCAACA	4192	TGTTGCTA GGCTAGCTACAACGA AGGTCTTA	12941
6487	GACCUGUA G CAACACGU	4193	ACGTGTTG GGCTAGCTACAACGA TACAGGTC	12942
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6492	GUAGCAAC A CGUGGCAU	4195	ATGCCACG GGCTAGCTACAACGA GTTGCTAC	12944
6494	AGCAACAC G UGGCAUGG	4196	CCATGCCA GGCTAGCTACAACGA GTGTTGCT	12945
6497	AACACGUG G CAUGGAAC	4197	GTTCCATG GGCTAGCTACAACGA CACGTGTT	12946
6499	CACGUGGC A UGGAACAU	4198	ATGTTCCA GGCTAGCTACAACGA GCCACGTG	12947
6504	GGCAUGGA A CAUUCCCC	4199	GGGGAATG GGCTAGCTACAACGA TCCATGCC	12948
6506	CAUGGAAC A UUCCCCAU	4200	ATGGGGAA GGCTAGCTACAACGA GTTCCATG	12949
6513	CAUUCCCC A UCAACGCA	4201	TGCGTTGA GGCTAGCTACAACGA GGGGAATG	12950
6517	CCCCAUCA A CGCAUACA	4202	TGTATGCG GGCTAGCTACAACGA TGATGGGG	12951
6519	CCAUCAAC G CAUACACC	4203	GGTGTATG GGCTAGCTACAACGA GTTGATGG	12951
6521	AUCAACGC A UACACCAC	4203	GTGGTGTA GGCTAGCTACAACGA GTTGATGAT	12952
6523	CAACGCAU A CACCACGG	4204	CCGTGGTG GGCTAGCTACAACGA GCGTTGAT	12953
6525	ACGCAUAC A CCACGGGC	4205	GCCCGTGG GGCTAGCTACAACGA ATGCGTTG	
6528	CAUACACC A CGGGCCCC	4207	GGGGCCG GGCTAGCTACAACGA GTGTATG	12955
6532	CACCACGG G CCCCUGCA	4207	TGCAGGGG GGCTAGCTACAACGA CCGTGGTG	12956
6538	GGGCCCCU G CACACCCU	4208		12957
6540	GCCCCUGC A CACCCUCC	4210	AGGGTGTG GGCTAGCTACAACGA AGGGGCCC GGAGGGTG GGCTAGCTACAACGA GCAGGGGC	12958
6542	CCCUGCAC A CACCCUCCC	4210		12959
UJ72	COUNCIAL A COUNCIL	4211	GGGGAGGG GGCTAGCTACAACGA GTGCAGGG	12960

65552 CCUCCCCGG G GCCABACUA 4212 GTTTGGGG GGCTACAGA GCGGGGGGG 12961 65554 UCCCCGGG G CCABACUA 4213 TAGTTTGG GGCTACATCAGAGA GCGGGGGGA 12963 6552 GCCAAACUA A CULNUCUA 4215 CCCTAGAAA GGCTAGCTACAACGA ATTGGGGCC 12963 6570 AUTUCUAGGG G CGCUALDG 4216 CCCTAGAAA GGCTAGCTACAACGA CCTMAGAT 12965 6575 AGGGCCUA A UGGCGGGU 4217 GCCACCAB GGCTAGCTACAACGA AGGCCCCT 12967 6576 CAULAGGGC G UGUNGGG 4218 ACCCGCCA GGCTAGCACAACGA AGGCCCCT 12967 6576 CAGGGGGU A UGGCGGU 4220 AGGGGGCA GGCTAGCTACAACGA AGGCCCCT 12976 6582 CADGGGGG G C CCCCTUBAG 4221 ACCCGCCA GGCTACAACGA CACCCCCC 12970 6585 GGCGGGUAG G CCCCCC 4222 CTCCTACA GGCTACACACAGA CACCCCCC 12976 6586 GGCGGGUAG G CCCCCC 4222 CTCCTACA GGCTACACACAGA CACCCCCC 12976 6587 GGCGGGCGC 4222 CTCCTACA GGCTACACACAGA CACCCCCCCCCCCCCCC					10051
6572					
6575					
	6570		4216		
	6572	UCUAGGC G CUAUGGCG	4217	CGCCATAG GGCTAGCTACAACGA GCCCTAGA	12966
6595	6575	AGGGCGCU A UGGCGGGU	4218	ACCCGCCA GGCTAGCTACAACGA AGCGCCCT	12967
6585 GGCGGGUG G CCGCUGAG 4221 CTCAGCGG GGCTAGCTACAACGA CACCCGCC 12970 6588 GGGUGGCC G CUGAGGAG 4222 CTCCTCAG GGCTAGCTACAACGA GGCCACCC 12970 6598 GCUGAGGA G UACGUGGA 4222 CTCCCTCAG GGCTAGCTACAACGA GGCCACCC 12972 6598 UAGGGAGU A CGUGAGG 4224 CCTCCACG GGCTAGCTACAACGA ATCCTCAC 12973 6600 AGGAGUAC G UGGAGGUU 4225 AACCTCCA GGCTAGCTACAACGA ATCCTCCA 12973 6606 ACGUGGAG G UUACGCGG 4226 CCGCGTAA GGCTACATCAACGA CTCCTCCT 12975 6609 UGAGGGUU A CGCGGGUG 4227 CACCCGG GGCTAGCTACAACGA CTCCCCC 12976 6609 UGAGGGUU A CGCGGGUG 4227 CACCCGG GGCTAGCTACAACGA CTCCACCT 12976 6611 GAGGUUAC G CGGGUGGG 4228 CCCACCCG GGCTAGCTACAACGA CCCCCCA 12976 6615 UUACGCGG G UGGGGGUU 4229 ATCCCCCA GGCTAGCTACAACGA CCCCCCACC 12976 66161 UGAGGGG A UUCCCACU 4230 AGTGGAAA GGCTAGCTACAACGA CCCCCCACC 12976 6628 GGAUUUCC A CUACGUGA 4231 TACGGTAG GGCTAGCTACAACGA CCCCCCAC 12976 6631 UUCCCACU A CUACGUGA 4231 TACGGTAG GGCTAGCTACAACGA CCCCCCAC 12986 6631 UUUCCACU A CUACGUGA 4231 TACGGTAG GGCTAGCTACAACGA GTAGTGAA 12981 6631 UUCCACUAC G UBACGGGC 4233 GCCCGTCA GGCTAGCTACAACGA GTAGTGAA 12981 6633 UCCACUAC G UBACGGGC 4233 GCCCGTCA GGCTAGCTACAACGA GTAGTGAA 12981 6640 CUGACGGG A GGGCAU 4235 TGGTCAGCTACAACGA CACGTAGA 12981 6641 UGACGGCC AUGACCA 4235 TGGTCAGCTACAACGA CACGTAGA 12983 6642 UGACGGCC AUGACCA 4235 TGGTCAGCTACAACGA CACGTAGA 12985 6643 ACUAGGGG A UGACCAC 4236 GCTAGCTACAACGA CCGTCACC 12986 6644 UGACGGGC A UGACCAC 4236 GCTAGCTACAACGA CACGTACA 12985 6645 CGGCCAUG A CACGUAA 4236 AGTGGTAG GGCTAGCTACAACGA CCGTCAC 12986 6646 CAUGACAC A CUACACC 4237 GTCAGTCA GGCTAGCTACAACGA CCGTCAC 12986 6652 AACGUAA CCACAC 433 GTCAGTCA GGCTAGCTACAACGA CCGTCAC 12986 6653 ACUAGGGC A CAACGUAA 4236 AGTGGTAG GGCTAGCTACAACGA CATGCCCG 12986 6654 CGCACCUG A CAACGUAA 4236 AGTGGTAG GGCTAGCTACAACGA CATGCCCG 12986 6655 CACUGACA C CUACACA 4237 GTCAGTCA GGCTAGCTACAACGA CATGCCCG 12986 6656 AAAGGAGA C CAACGUAA 4236 GCCGGTCA GGCTAGCTACAACGA CATGCCCG 12986 6656 AAAGGAGA C CAACGUAA 4236 GCCGGCTAGCTACAACGA CATGCCCC 12986 6656 AAAGGAGA C CAACGUAA 4236 GCCGGCTAGCTACAACGA CATGCCCC 12986 6666 AAAGGGAG C CAACGGGC 4	6578	GCGCUAUG G CGGGUGGC	4219	GCCACCCG GGCTAGCTACAACGA CATAGCGC	12968
6588 GGGUGGCC G CUGAGAG 4222 CTCCTCAG GGCTAGCTACAAGA GGCCACC 12971 6596 GCUGAGAG A UAGGUGGA 4223 TCCACGTA GGCTAGCTACAAGGA TCCTCAGC 12972 6598 UAGAGAGU A GUGGAGG 4224 CCTCACAG GGCTAGCTACAAGGA ACTCCTCA 12973 6600 AGGUGGAG G UAGAGGGU 4225 AACCTCCA GGCTAGCTACAAGGA GTCCACGT 12976 6601 ACGUGGAG G UAGAGGGG 4226 ACCCCCCG GGCTAGCTACAAGGA ACCTCCA 12976 6601 AGGUGGAG G UAGAGGGG 4228 CCCACCCG GGCTAGCTACAAGGA ACCTCCAA 12976 6611 UAGAGGGG A UTUCCACU 4220 ACCCCCG GGCTAGCTACAAGGA CCCGATAA 12978 6622 GGGUGGGG A UTUCCACU 4230 AGTGGAAA GCCTAGCTACAACGA CCCCCACC 12979 6628 GGAUUUCC A CUACGUGA 4231 TCACGAGG GGCTAGCTACAACGA ACGAGAACCACC 12981 6631 UUCCACU A CUACGUGA 4232 CCCGTCCA GGCTAGCTACAACAGA ACTGAGAA 12981 6631 UUCCACU A CUGACAA 4232 CCGTCACG GGCTAGCTACAACGA ACTGATAA 12981 6642 CAUGAGGG C CAUGACCA 4233 GCCCGTCA GGCTAGCTACAACGA ACTGATA	6582	UAUGGCGG G UGGCCGCU	4220	AGCGGCCA GGCTAGCTACAACGA CCGCCATA	12969
6596 GCUGAGGA G UACGUGGA 4223 TCCACGTA GGCTAGCTACAACGA TCCTCAGC 12973 6598 UGAGGAGU A CSUGAAGG 4224 CCTCCACG GGCTAGCTACAACGA ACTCCTCA 12973 6606 AGGAGUAC G UGAGAGGU 4226 AACCTCCA 12975 6606 ACGUGGAG G UJACACCGG 4226 CCGGGTAA GGCTAGCTACACGA ACTCCTC 12974 6606 ACGUGGAG G UJACACCGG 4227 CACCCGC GGCTAGCTACACGA GTCCACGT 12976 6609 UGGAGGUU A CGCGGGUG 4227 CACCCGC GGCTAGCTACAACGA ACCTCCA 12976 6611 GAGGUUAC G CGGGGUG 4227 CACCCGC GGCTAGCTACAACGA ACCTCC 12976 6611 UJACGCGG G UGGGGGUU 4229 ATCCCCCA GGCTAGCTACAACGA ACCTCCA 12976 6612 GGUGGGGG A UJUCCCACU 4230 ACTGCAA GCTAGCTACAACGA ACCTCC 12979 6628 GGAUUUCC A CUACGUGA 4231 TCACGTAG GGCTAGCTACAACGA GGAACCC 12979 6628 GGAUUUCC A CUACGUGA 4231 TCACGTAG GGCTAGCTACAACGA GGAACCC 12980 6631 UJUCCACUAC G UGACGGG 4233 CCCGTCAC GGCTAGCTACAACGA GGAACCC 12980 6633 UCCACUAC G UGACGGG 4233 CCCGTCAC GGCTAGCTACAACGA GGAACCC 12980 6634 CUACACUAC G UGACGGG 4233 GCCCGTCA GGCTAGCTACAACGA GTGGAAA 12981 6640 CGUGACGG G CAUGACCA 4234 CATGCCCG GGCTAGCTACAACGA GTGGAA 12981 6641 CGGGCAUG A CGACCACU 4236 AGTGGTCA GGCTAGCTAACGA CACGTAGC 12986 6642 UGACGGC A UGACCACU 4236 AGTGGTCA GGCTAGCTACAACGA CACGTAGC 12986 6643 UGACGGC A UGACCACU 4236 AGTGGTCA GGCTAGCTACAACGA CACGTAGC 12986 6644 UGACGGC A UGACCACU 4236 AGTGGTCA GGCTAGCTACAACGA CACGTAGC 12986 6645 CGGGCAUG A CAACGUAA 4238 GTTGTCAG GGCTAGCTACAACGA CACGTCAC 12986 6646 CGAUGACC A CUGACAAC 4238 GTTGTCAG GGCTAGCTACAACGA CACGTCAC 12986 6652 GACCACUG A CAACGUAA 4238 GTTGTCAG GGCTAGCTACAACGA CACGCCC 12986 6653 CACUGACA A CUGACAAC 4238 GTTGTCAG GGCTAGCTACAACGA CATGCCC 12986 6654 CGCAUGACA C CUGACAAC 4238 GTTGTCAG GGCTAGCTACAACGA CATGCCC 12986 6655 CACUGACA A CUGACAAC 4238 GTTGTCAG GGCTAGCTACAACGA CATGCCC 12986 6656 AACGUAAA UGCCCCC 4246 GGTTAGCTACAACGA CAGTGGTC 12986 6657 CUGACAAC G UAAAAUG 4241 GCATCTTA GGCTAGCTACAACGA TGTCAGT 12989 6658 AAUGUCC C UAAAAUG 4241 GCATCTTA GGCTAGCTACAACGA TGTCAGT 12999 6668 AAUGCCCC G UAAAAUG 4241 GCATCTTA GGCTAGCTACAACGA TGTCAGT 12999 6669 AACGUAAA UGCCCCC 4246 GGCGGGG GGCTAGCTACAACGA CAGTCTT 12991 6679 CAUCACAC G UAAAAG	6585	GGCGGGUG G CCGCUGAG	4221	CTCAGCGG GGCTAGCTACAACGA CACCCGCC	12970
6598 UGAGGAGU A CGUGGAGG 4224 CCTCCACG GGCTAGCTACAACGA ACTCCTCA 12973 6600 AGGAGUAC G UGAGGGU 4225 AACCTCCA GGCTAGCTACAACGA GTACTCCT 12974 6600 AGGUGGAG G UUACGCGG 4226 CCGCGTAG GGCTAGCTACACGA GTACTCCA 12976 6609 UGGAGGUU A CGCGGGUG 4227 CACCCGG GGCTAGCTACAACGA ACCTCCA 12976 6611 GAGGUUAC G CGGGUGGG 4228 CCCACCG GCTAGCTACAACGA CACCGCACA 12979 66125 UUACGCGG G UGGGGGAU 4229 ATCCCCCA GCTAGCTACAACGA CACCCCACC 12979 66226 GGUGGGGG A UUUCCACU 4230 AGTGGAAG GCCTACCACCACACGA GGAATTC 12979 6628 GGAUUUCC A CUACGUGA 4231 TCACGTAG GGCTAGCTACAACGA AGGAATTC 12981 6631 UUUCCACU A CUACGUGA 4231 CCCGTCAG GGCTAGCTACAACGA AGGAATTC 12981 6632 ACALAGGUG A CGGCAUG 4233 GCCGTAGCTACAACGA AGGACCACCACCACCACCACCACCACCACCACCACCACCA	6588	GGGUGGCC G CUGAGGAG	4222	CTCCTCAG GGCTAGCTACAACGA GGCCACCC	12971
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6655 CACUGACA A CGUAAAAU 4240 ATTTTACG GGCTACAACGA TGTCAGTG 12989 6657 CUGACAAC G UAAAAUGC 4241 GCATTTTA GGCTACAACGA GTTGTCAG 12990 6657 CUGACAAC G UAAAAUGC 4241 GCATTTTA GGCTACAACGA GTTGTCAG 12990 6662 AACGUAAAA A UGCCCGUG 4242 CACGGGCA GGCTAGCTACAACGA TTTACGT 12991 6668 AAAUGCCC G UGCCAGGU 4243 GGCACGGA GGCTAGCTACAACGA ACGA GGCAGTT 12992 6670 AUGCCGU G CCAGGUUC 4245 GAACCTGG GGCTAGCTACAACGA ACGGCAT 12994 6675 CGUGCCAG G UUCCGCCC 4246 GGGCGGAA GGCTAGCTACAACGA ACGGCACT 12995 6680 CAGGUUC G CCCCCCCA 4247 TGGGGGG GGCTAGCTACAACGA GGAACACT 12996 6689 CCCCCCCCAGA A UUCUUCAC 4248 GTGAAGAA GGCTACAACGA TCGGGGG 12997 6702 UCACGGAA G UUCUUCAC 4248 GTACCCCA GGCTAGCTACAACGA TCCTGGA 12999 6703 UCACGGAA G UGGAC 4251 GTACCCCA GGCTAGCTACAACGA CCACTTCC 13000 6711 UGAGAGGG A UGGCUCGA 4252 CAGGCTA GGCTACAACGA CCCCTTCCA <th< td=""><td>6648</td><td>GCAUGACC A CUGACAAC</td><td>4238</td><td>GTTGTCAG GGCTAGCTACAACGA GGTCATGC</td><td>12987</td></th<>	6648	GCAUGACC A CUGACAAC	4238	GTTGTCAG GGCTAGCTACAACGA GGTCATGC	12987
6657 CUGACAAC G UAAAAUGC 4241 GCATTTTA GGCTAGCTACAACGA GTTGTCAG 12990 6662 AACGUAAA A UGCCCGUG 4242 CACGGGCA GGCTAGCTACAACGA TTTACGTT 12991 6664 CGUAAAAU G CCCGUGCC 4243 GGCACGGG GGCTAGCTACAACGA ATTTACGT 12992 6668 AAAUGCCC G UGCCAGGU 4244 ACCTGGCA GGCTAGCTACAACGA GGCCATT 12993 6670 AUGCCCGU G CCAGGUUC 4245 GAACCTGG GGCTAGCTACAACGA ACGGCATT 12993 6675 CGUGCCAG G UUCCGCCC 4246 GGGCGGAA GGCTAGCTACAACGA CTGGCACG 12995 6680 CAGGUUCC G CCCCCGA 4247 TCGGGGGG GGCTAGCTACAACGA CTGGCACG 12995 6680 CCCCCCCGA A UUCUUCAC 4248 GTGAAGAA GGCTAGCTACAACGA CTGGGGGG 12997 6696 AAUUCUUC A CGGAAGUG 4249 CACTTCCG GGCTAGCTACAACGA TCGGGGGG 12997 6702 UCACGGAA G UGGGGUAC 4250 CCCATCCA GGCTAGCTACAACGA TCGGGGG 12998 6702 UCACGGAA G UGGGGUAC 4251 GTACCCCA GGCTAGCTACAACGA TCCGTGA 12999 6704 GGAAGUG A UGGGGUAC 4251 GTACCCCA GGCTAGCTACAACGA TCCCTGA 12999 6705 GGAAGUG A UGGGGUAC 4251 GTACCCCA GGCTAGCTACAACGA TCCCCTGA 13000 6711 UGGAUGGG G UACGCCUG 4252 CAGGCGTA GGCTAGCTACAACGA CCCATTCC 13000 6713 GAUGGGGU A CGCCUGCA 4253 TGCAGGG GGCTAGCTACAACGA CCCATTCC 13000 6715 UGGGGUAC G CCUGCACA 4254 TGTGCAGG GGCTAGCTACAACGA CCCATTCC 13001 6719 GUACGCCU G CACAGAAA 4255 TTTCTGTG GGCTAGCTACAACGA ACCCCAT 13001 6720 ACGCCUG A CAGAAACG 4256 CGTTTCTG GGCTAGCTACAACGA ACCCCAT 13001 6721 ACGCCUG A CAGAAACG 4256 CGTTTCTG GGCTAGCTACAACGA TTCTGTGC 13006 6729 ACAGAAAC G CUCCGGG 4257 CCGGGAG GGCTAGCTACAACGA TTCTGTGC 13006 6735 ACGCUCCG G CGUUGGA 4258 CGCGGAG GGCTAGCTACAACGA TTCTGTGC 13006 6736 ACGCUCCG G CGUUGGA 4259 TCCACCA GGCTAGCTACAACGA GCAGGCGT 13001 6737 GCUCCGGC G UGUGGA 4256 CGCGGAG GGCTAGCTACAACGA ACGCCGA 13001 6738 ACGCUCCG G CGUUGGA 4256 CGCGGAG GGCTAGCTACAACGA GCAGGCT 13006 6739 UCCGGCG G UGUGGA 4256 CGCGGAG GGCTAGCTACAACGA GCAGGCT 13006 6739 UCCGGCG G UGUGGA 4256 CGCGGAG GGCTAGCTACAACGA ACGCCGA 13001 6731 GCUCCGC G GGGAGCA 4260 GGTCACA GGCTAGCTACAACGA ACGCCGA 13001 6732 ACGCUCCU A CGGGAGCA 4260 GGTCACA GGCTAGCTACAACGA ACGCCGA 13001 6733 GCUCCGC G UGUGGA 4266 ACCTGCGG GGCTAGCTACAACGA ACGCCGA 13011 6765 AGGAGGA G UCACAUUC 4261 GAGGTACGA GGCTAGCTACAACGA ACGCC	6652	GACCACUG A CAACGUAA	4239	TTACGTTG GGCTAGCTACAACGA CAGTGGTC	12988
6662 AACGUAAA A UGCCCGUG 4242 CACGGGCA GGCTAGCTACAACGA TTTACGTT 12991 6664 CGUAAAAU G CCCGUGCC 4243 GGCACGGG GGCTAGCTACAACGA ATTTTACG 12992 6668 AAAUGCCC G UGCCAGGU 4244 ACCTGGCA GGCTAGCTACAACGA ACGGACTT 12993 6670 AUGCCCGU G CCAGGUUC 4245 GAACCTGG GGCTAGCTACAACGA ACGGACT 12994 6675 CGUGCCAG G UUCCGCCC 4246 GGGCGGAA GGCTAGCTACAACGA CTGGCACG 12995 6680 CAGGUUCC G CCCCCGA 4247 TCGGGGGG GGCTAGCTACAACGA CTGGCACG 12995 6689 CCCCCCGA A UUCUUCAC 4248 GTGAAGAA GGCTAGCTACAACGA TCGGGGG 12997 6696 AAUUCUUC A CGGAAGUG 4249 CACTTCCG GGCTAGCTACAACGA TCCGTGA 12998 6702 UCACGGAA G UGGAUGG 4250 CCCATCCA GGCTAGCTACAACGA CCACTTCC 13001 6701 UGAGGGG A UGGGUAC 4251 GTACCCCA GGCTAGCTACAACGA CCCATTCCA 13001 6713 GAUGGGUA A CGCCUGCA 4253 TCCAGGGG GGCTAGCTACAACGA ACCCCATC 13002 6715 UGGGGUAC G CCUGCACA 4254 TGTGCAGG GGCTAGCTACAACGA ACCCCCA </td <td>6655</td> <td>CACUGACA A CGUAAAAU</td> <td>4240</td> <td>ATTTTACG GGCTAGCTACAACGA TGTCAGTG</td> <td>12989</td>	6655	CACUGACA A CGUAAAAU	4240	ATTTTACG GGCTAGCTACAACGA TGTCAGTG	12989
6664 CGUAAAAU G CCCGUGCC 4243 GGCACGGG GGCTAGCTACAACGA ATTTTACG 12992 6668 AAAUGCCC G UGCCAGGU 4244 ACCTGGCA GGCTAGCTACAACGA GGGCATT 12993 6670 AUGCCGU G CCAGGUUC 4245 GAACCTGG GGCTAGCTACAACGA ACGGGCAT 12994 6675 CGUGCCAG G UUCCGCCC 4246 GGGCGGAA GGCTAGCTACAACGA CTGCACC 12995 6680 CAGGUUC G CCCCCGA 4247 TCGGGGG GGCTAGCTACAACGA GGAACTG 12996 6689 CCCCCCGA A UUCUUCAC 4248 GTGAAGAA GGCTAGCTACAACGA TCGGGGG 12997 6696 AAUUCUUC A CGGAAGUG 4249 CACTTCCG GGCTAGCTACAACGA TCCGTGGA 12998 6702 UCACGGAA G UGGAUGG 4250 CCCATCCA GGCTAGCTACAACGA TCCGTGA 12999 6706 GGAAGUGG A UGGGUGA 4251 GTACCCCA GGCTAGCTACAACGA CCCATCCA 13000 6711 UGGGGUAC G CCGCACA 4252 CAGGCGTA GGCTACAAACGA ACCCATC 13002 6713 GAUGGCU G CACAGAAA 4254 TTCTGTG GGCTAGCTACAACGA ACCCATC 13002 6715 UGGGUAC G CCUGCACA 4254 TTCTGTG GGCTAGCTACAACGA ACCGCGT <td< td=""><td>6657</td><td>CUGACAAC G UAAAAUGC</td><td>4241</td><td>GCATTTTA GGCTAGCTACAACGA GTTGTCAG</td><td>12990</td></td<>	6657	CUGACAAC G UAAAAUGC	4241	GCATTTTA GGCTAGCTACAACGA GTTGTCAG	12990
6668 AAAUGCCC G UGCCAGGU 4244 ACCTGGCA GGCTAGCTACAACGA GGGCATT 1293 6670 AUGCCCGU G CCAGGUUC 4245 GAACCTGG GGCTAGCTACAACGA ACGGGCAT 12994 6675 CGUGCCAG G UUCCGCCC 4246 GGGCGGAA GGCTAGCTACAACGA CTGGCACG 12995 6680 CAGGUUCC G CCCCCGA 4247 TCGGGGGG GGCTAGCTACAACGA GGAACCTG 12996 6689 CCCCCCGA A UUCUUCAC 4248 GTGAAGAA GGCTTAGCTACAACGA TCGGGGG 12997 6696 AAUUCUUC A CGGAAGUG 4249 CACTTCCC GGCTAGCTACAACGA TCGGTGA 12998 6702 UCACGGAA G UGGAUGG 4250 CCCATCCA GGCTAGCTACAACGA TCCGTGA 12999 6706 GGAAGUGG A UGGGGUAC 4251 GTACCCCA GGCTAGCTACAACGA CCACTTCC 13000 6711 UGGAUGGG G UACGCCUG 4252 CAGGCGTA GGCTAGCTACAACGA CCCATCC 13001 6713 GAUGGGUA A CGCCUGA 4253 TGCAGGCG GGCTAGCTACAACGA ACCCCATC 13002 6715 UGGGGUAC G CCUGCAA 4254 TGTGCAGG GGCTAGCTACAACGA AGCCCCA 13003 6719 GUACGCCU G CACAGAAA 4255 TTTCTGTG GGCTAGCTACACGA GCAGGCT	6662	AACGUAAA A UGCCCGUG	4242	CACGGGCA GGCTAGCTACAACGA TTTACGTT	12991
6670 AUGCCCGU G CCAGGUUC 4245 GAACCTGG GGCTAGCTACAACGA ACGGGCAT 1294 6675 CGUGCCAG G UUCCGCCC 4246 GGGCCGAA GGCTAGCTACAACGA CTGGCACG 12995 6680 CAGGUUCC G CCCCCGA 4247 TCGGGGGG GGCTAGCTACAACGA GGAACCTG 12996 6689 CCCCCCGA A UUCUUCAC 4248 GTGAAGAA GGCTAGCTACAACGA TCGGGGGG 12997 6696 AAUUCUUC A CGGAAGUG 4249 CACTTCCC GGCTAGCTACAACGA GAAGAATT 12998 6702 UCACGGAA G UGGAUGG 4250 CCCATCCA GGCTAGCTACAACGA CCACTTCC 13000 6706 GGAAGUGG A UGGGUAC 4251 GTACCCCA GGCTAGCTACAACGA CCACTTCC 13000 6711 UGGAUGGG G UACGCUG 4252 CAGGCGTA GGCTACAACGA CCACTCCA 13001 6713 GAUGGGUA C GCUGCACA 4253 TGCAGGC GGCTAGCTACAACGA ACCCATCCA 13003 6715 UGGGGUAC G CCUGCACA 4254 TGTGCAGG GGCTAGCTACAACGA ACCCCATC 13003 6719 GUACGCUG C ACAGAAA 4255 TTTCTGTG GGCTAGCTACAACGA AGCGGTT 13004 6721 ACGCUGC A CAGAAACG 4256 CGTTTCTG GGCTAGCTACAACGA TTCTGTGC	6664	CGUAAAAU G CCCGUGCC	4243	GGCACGGG GGCTAGCTACAACGA ATTTTACG	12992
6675 CGUGCCAG G UUCCGCCC 4246 GGGCGGAA GGCTAGCTACAACGA CTGGCACG 1295 6680 CAGGUUCC G CCCCCGA 4247 TCGGGGGG GGCTAGCTACAACGA GGAACCTG 12996 6689 CCCCCCGA A UUCUUCAC 4248 GTGAAGAA GGCTAGCTACAACGA TCGGGGGG 12997 6696 AAUUCUUC A CGGAAGUG 4249 CACTTCCG GGCTAGCTACAACGA GAAGAATT 12998 6702 UCACGGAA G UGGAUGGG 4250 CCCATCCA GGCTAGCTACAACGA TCCCTGA 12999 6706 GGAAGUGG A UGGGCUG 4251 GTACCCCA GGCTAGCTACAACGA CCACTTCC 13000 6711 UGGAUGGG UACGCCUG 4252 CAGGCGTA GGCTAGCTACAACGA CCCATCCA 13001 6713 GAUGGGUA C CCUGCACA 4254 TGTGCAGG GGCTAGCTACAACGA ACCCCATC 13002 6715 UGGGGUAC G CCUGCACA 4254 TGTGCAGG GGCTAGCTACAACGA AGGCGTAC 13003 6719 GUACGCCU G CACAGAAA 4255 TTTCTGTG GGCTAGCTACAACGA AGGCGTAC 13004 6721 ACGCUGC A CAGAAACG 4256 CGTTTCTG GGCTAGCTACAACGA GCAGCGT 13006 6729 ACAGAAAC 4257 CCGGAGG GGCTAGCTACAACGA GTTTCTGT <	6668	AAAUGCCC G UGCCAGGU	4244	ACCTGGCA GGCTAGCTACAACGA GGGCATTT	12993
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6689 CCCCCCGA A UUCUUCAC 4248 GTGAAGAA GGCTAGCTACAACGA TCGGGGGG 12997 6696 AAUUCUUC A CGGAAGUG 4249 CACTTCCG GGCTAGCTACAACGA GAAGAATT 12998 6702 UCACGGAA G UGGAUGGG 4250 CCCATCCA GGCTAGCTACAACGA TTCCGTGA 12999 6706 GGAAGUGG A UGGGGUAC 4251 GTACCCCA GGCTAGCTACAACGA CCACTTCC 13000 6711 UGGAUGGG G UACGCCUG 4252 CAGGCGTA GGCTAGCTACAACGA CCCATCCA 13001 6713 GAUGGGGU A CGCCUGCA 4253 TGCAGGCG GGCTAGCTACAACGA ACCCCATC 13002 6715 UGGGGUAC G CCUGCACA 4254 TGTGCAGG GGCTAGCTACAACGA ACCCCATC 13003 6719 GUACGCCU G CACAGAAA 4255 TTTCTGTG GGCTAGCTACAACGA AGGCGTAC 13004 6721 ACGCCUGC A CAGAAACG 4256 CGTTTCTG GGCTAGCTACAACGA AGGCGTAC 13005 6727 GCACAGAA A CGCUCCGG 4257 CCGGAGCG GGCTAGCTACAACGA TTCTGTGC 13006 6729 ACAGAAAC G CUCCGGCG 4258 CGCCGGAG GGCTAGCTACAACGA TTCTGTGC 13007 6735 ACGCUCCG G CGUGUGGA 4259 TCCACACG GGCTAGCTACAACGA GTTCTGT 13007 6736 ACGCUCCG G CGUGUGGA 4259 TCCACACG GGCTAGCTACAACGA CGGAGCGT 13008 6737 GCUCCGGC G UGUGGAC 4260 GGTCCACA GGCTAGCTACAACGA ACGCCGGA 13009 6739 UCCGGCGU G UGGACCU 4261 GAGGTCCA GGCTACAACGA ACGCCGGA 13010 6743 GCGUGUGG A CCUCUCCU 4261 GAGGTCCA GGCTAGCTACAACGA ACGCCGGA 13010 6743 GCGUGGG A CCUCUCCU 4261 GAGGTCCA GGCTAGCTACAACGA ACGCCGGA 13010 6752 CCUCUCCU A CGGGAGGA 4263 TCCTCCC GGCTAGCTACAACGA ACGCCGGA 13011 6752 CCUCUCCU A CGGGAGGA 4263 TCCTCCCG GGCTAGCTACAACGA ACGCAGCC 13011 6754 GGGAGGAG G UCACAUUC 4264 GAATGTAG GGCTAGCTACAACGA ACGCAGCC 13012 6765 AGGAGGUC A CAUUCCAG 4265 CTGGAATG GGCTAGCTACAACGA ACGCACGC 13013 6765 AGGAGGUC A CAUUCCAG 4266 ACCTGGAATG GGCTAGCTACAACGA GGCACCTCT 13014 6767 GAGGUCAC A UUCCAGGU 4266 ACCTGGAATG GGCTAGCTACAACGA GTGCTCCCC 13013	6675	CGUGCCAG G UUCCGCCC	4246	GGGCGGAA GGCTAGCTACAACGA CTGGCACG	12995
6696 AAUUCUUC A CGGAAGUG 4249 CACTTCCG GGCTAGCTACAACGA GAAGAATT 12998 6702 UCACGGAA G UGGAUGGG 4250 CCCATCCA GGCTAGCTACAACGA TTCCGTGA 12999 6706 GGAAGUGG A UGGGGUAC 4251 GTACCCCA GGCTAGCTACAACGA CCACTCC 13000 6711 UGGAUGGG G UACGCCUG 4252 CAGGCGTA GGCTAGCTACAACGA CCCATCCA 13001 6713 GAUGGGGU A CGCCUGCA 4253 TGCAGGC GGCTAGCTACAACGA ACCCCAT 13002 6715 UGGGGUAC G CCUGCACA 4254 TGTGCAGG GGCTAGCTACAACGA ACCCCAT 13003 6719 GUACGCCU G CACAGAAA 4255 TTTCTGTG GGCTAGCTACAACGA AGGCGTAC 13004 6721 ACGCCUGC A CAGAAACG 4256 CGTTTCTG GGCTAGCTACAACGA GCAGGCGT 13005 6727 GCACAGAA A CGCUCCGG 4257 CCGGAGCG GGCTAGCTACAACGA TTCTGTG 13006 6729 ACAGAAAC G CUCCGGCG 4258 CGCCGGAG GGCTAGCTACAACGA GTTCTGT 13007 6735 ACGCUCCG G CGUGGAA 4259 TCCACACG GGCTAGCTACAACGA CGAGCGT 13008 6737 GCUCCGGC G UGGACCU 4260 GGTCCACA GGCTAGCTACAACGA ACGCCGGA <td>6680</td> <td>CAGGUUCC G CCCCCGA</td> <td>4247</td> <td>TCGGGGGG GGCTAGCTACAACGA GGAACCTG</td> <td>12996</td>	6680	CAGGUUCC G CCCCCGA	4247	TCGGGGGG GGCTAGCTACAACGA GGAACCTG	12996
UCACGGAA G UGGAUGGG 4250 CCCATCCA GGCTAGCTACAACGA TTCCGTGA 12999 6706 GGAAGUGG A UGGGGUAC 4251 GTACCCCA GGCTAGCTACAACGA CCACTTCC 13000 6711 UGGAUGGG G UACGCCUG 4252 CAGGCGTA GGCTAGCTACAACGA CCCATCCA 13001 6713 GAUGGGGU A CGCCUGCA 4253 TGCAGGCG GGCTAGCTACAACGA ACCCCATC 13002 6715 UGGGGUAC G CCUGCACA 4254 TGTGCAGG GGCTAGCTACAACGA GTACCCCA 13003 6719 GUACGCCU G CACAGAAA 4255 TTTCTGTG GGCTAGCTACAACGA AGGCGTAC 13004 6721 ACGCCUGC A CAGAAACG 4256 CGTTTCTG GGCTAGCTACAACGA GCAGGCGT 13005 6727 GCACAGAA A CGCUCCGG 4257 CCGGAGCG GGCTAGCTACAACGA TTCTGTGC 13006 6729 ACAGAAAC G CUCCGGCG 4258 CGCCGGAG GGCTAGCTACAACGA TTCTGTG 13007 6735 ACGCUCCG CGUGUGGA 4259 TCCACACG GGCTAGCTACAACGA CGAGGCGT 13008 6737 GCUCCGGC UGUGGAC 4260 GGTCCACA GGCTAGCTACAACGA CGCGGAGC 13009 6739 UCCGGCGU UGGACCU 4261 GAGGTCCA GGCTAGCTACAACGA ACGCCGGA 13010 6743 GCGUGUGG A CCUCUCCU 4262 AGGAGAGG GGCTAGCTACAACGA CCACACG 13011 6752 CCUCUCCU A CGGGAGGA 4263 TCCTCCC GGCTAGCTACAACGA AGGAGAGG 13012 6762 GGGAGGAG GUCACAUUC 4264 GAATGTGA GGCTAGCTACAACGA ACGCCC 13012 6765 AGGAGGUC A CAUUCCAG 4266 CAATGTGA GGCTAGCTACAACGA ACGCCGC 13012 6766 GGGAGGAC A CUUCCAGG 4266 CAATGTGA GGCTAGCTACAACGA ACGCCCC 13013 6766 GGGAGGAC A CAUUCCAG 4266 CAATGTGA GGCTAGCTACAACGA ACGCCCC 13013 6766 GGGAGGAC A CAUUCCAG 4266 ACCTGCAG GGCTAGCTACAACGA ACCCCCC 13013	6689	CCCCCGA A UUCUUCAC	4248	GTGAAGAA GGCTAGCTACAACGA TCGGGGGG	12997
6702UCACGGAA G UGGAUGGG4250CCCATCCA GGCTAGCTACAACGA TTCCGTGA129996706GGAAGUGG A UGGGGUAC4251GTACCCCA GGCTAGCTACAACGA CCACTTCC130006711UGGAUGGG G UACGCCUG4252CAGGCGTA GGCTAGCTACAACGA CCCATCCA130016713GAUGGGGU A CGCCUGCA4253TGCAGGCG GGCTAGCTACAACGA ACCCCATC130026715UGGGGUAC G CCUGCACA4254TGTGCAGG GGCTAGCTACAACGA GTACCCCA130036719GUACGCCU G CACAGAAA4255TTTCTGTG GGCTAGCTACAACGA AGGCGTAC130046721ACGCCUGC A CAGAAACG4256CGTTTCTG GGCTAGCTACAACGA GCAGGCGT130056727GCACAGAA A CGCUCCGG4257CCGGAGCG GGCTAGCTACAACGA TTCTGTGC130066729ACAGAAAC G CUCCGGCG4258CGCCGGAG GGCTAGCTACAACGA GTTTCTGT130076735ACGCUCCG G CGUGUGGA4259TCCACACG GGCTAGCTACAACGA CGAGGCGT130086737GCUCCGGC G UGUGGAC4260GGTCCACA GGCTAGCTACAACGA ACGCCGGA130096739UCCGGCGU G UGGACCU4261GAGGTCCA GGCTAGCTACAACGA ACGCCGGA130106743GCGUGUGG A CCUCUCCU4262AGGAGAGG GGCTAGCTACAACGA ACGCCGGA130116752CCUCUCCU A CGGGAGGA4263TCCTCCCG GGCTAGCTACAACGA ACGAGC130126762GGGAGGAG G UCACAUUC4264GAATGTGA GGCTAGCTACAACGA CTCCTCCC130136765AGGAGGUC A CAUUCCAG4265CTGGAATG GGCTAGCTACAACGA GTGACCTC130146767GAGGUAC A UUCCAGGU4266ACCTGGAA GGCTTACCTACAACGA GTGACCTC13015	6696	AAUUCUUC A CGGAAGUG	4249	CACTTCCG GGCTAGCTACAACGA GAAGAATT	12998
6706 GGAAGUGG A UGGGGUAC 4251 GTACCCCA GGCTAGCTACAACGA CCACTTCC 13000 6711 UGGAUGGG G UACGCCUG 4252 CAGGCGTA GGCTAGCTACAACGA CCCATCCA 13001 6713 GAUGGGGU A CGCCUGCA 4253 TGCAGGCG GGCTAGCTACAACGA ACCCCATC 13002 6715 UGGGGUAC G CCUGCACA 4254 TGTGCAGG GGCTAGCTACAACGA GTACCCCA 13003 6719 GUACGCCU G CACAGAAA 4255 TTTCTGTG GGCTAGCTACAACGA AGGCGTAC 13004 6721 ACGCCUGC A CAGAAACG 4256 CGTTTCTG GGCTAGCTACAACGA GGAGGCGT 13005 6727 GCACAGAA A CGCUCCGG 4257 CCGGAGCG GGCTAGCTACAACGA GCAGGCGT 13006 6729 ACAGAAAC G CUCCGGCG 4258 CGCCGGAG GGCTAGCTACAACGA GTTCTGTG 13007 6735 ACGCUCCG G CGUGUGGA 4259 TCCACACG GGCTAGCTACAACGA CGAGCGT 13008 6737 GCUCCGGC G UGUGGAC 4260 GGTCCACA GGCTAGCTACAACGA CGGAGCGT 13009 6739 UCCGGCGU G UGGACCUC 4261 GAGGTCCA GGCTAGCTACAACGA ACGCCGGA 13010 6743 GCGUGUGG A CCUCUCCU 4262 AGGAGAGG GGCTAGCTACAACGA CCACACGC 13011 6752 CCUCUCCU A CGGGAGGA 4263 TCCTCCCG GGCTAGCTACAACGA ACGCCGGA 13012 6762 GGGAGGAG G UCACAUUC 4264 GAATGTGA GGCTAGCTACAACGA ACGCCCC 13013 6765 AGGAGGUC A CAUUCCAG 4265 CTGGAATG GGCTAGCTACAACGA ACGCCCC 13013 6766 GAGGUCAC A UUCCAGGU 4266 ACCTGGAA GGCTAGCTACAACGA GACCTCCT 13014	6702	UCACGGAA G UGGAUGGG	4250	CCCATCCA GGCTAGCTACAACGA TTCCGTGA	
6711 UGGAUGGG G UACGCCUG 4252 CAGGCGTA GGCTAGCTACAACGA CCCATCCA 13001 6713 GAUGGGGU A CGCCUGCA 4253 TGCAGGCG GGCTAGCTACAACGA ACCCCATC 13002 6715 UGGGGUAC G CCUGCACA 4254 TGTGCAGG GGCTAGCTACAACGA GTACCCCA 13003 6719 GUACGCCU G CACAGAAA 4255 TTTCTGTG GGCTAGCTACAACGA AGGCGTAC 13004 6721 ACGCCUGC A CAGAAACG 4256 CGTTTCTG GGCTAGCTACAACGA GCAGGCGT 13005 6727 GCACAGAA A CGCUCCGG 4257 CCGGAGCG GGCTAGCTACAACGA TTCTGTGC 13006 6729 ACAGAAAC G CUCCGGCG 4258 CGCCGGAG GGCTAGCTACAACGA GTTTCTGT 13007 6735 ACGCUCCG G CGUGUGGA 4259 TCCACACG GGCTAGCTACAACGA CGGAGCGT 13008 6737 GCUCCGGC G UGUGGACC 4260 GGTCCACA GGCTAGCTACAACGA GCCGGAGC 13009 6739 UCCGGCGU G UGGACCC 4261 GAGGTCCA GGCTAGCTACAACGA ACGCCGGA 13010 6743 GCGUGUGG A CCUCUCCU 4261 GAGGTCCA GGCTAGCTACAACGA CCACACGC 13011 6752 CCUCUCCU A CGGGAGGA 4263 TCCTCCCG GGCTAGCTACAACGA ACGCCGGA 13012 6762 GGGAGGAG G UCACAUUC 4264 GAATGTGA GGCTAGCTACAACGA CCACACGC 13013 6765 AGGAGGUC A CAUUCCAG 4265 CTGGAATG GGCTAGCTACAACGA GCCCCCC 13013 6766 GGGAGGAC A CUUCCAG 4266 ACCTGGAA GGCTAGCTACAACGA GACCTCCT 13014 6767 GAGGUCAC A UUCCAGGU 4266 ACCTGGAA GGCTAGCTACAACGA GACCTCCT 13014					
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G715 UGGGGUAC G CCUGCACA 4254 TGTGCAGG GGCTAGCTACAACGA GTACCCCA 13003 6719 GUACGCCU G CACAGAAA 4255 TTTCTGTG GGCTAGCTACAACGA AGGCGTAC 13004 6721 ACGCCUGC A CAGAAACG 4256 CGTTTCTG GGCTAGCTACAACGA GCAGGCGT 13005 6727 GCACAGAA A CGCUCCGG 4257 CCGGAGCG GGCTAGCTACAACGA TTCTGTGC 13006 6729 ACAGAAAC G CUCCGGCG 4258 CGCCGGAG GGCTAGCTACAACGA GTTTCTGT 13007 6735 ACGCUCCG G CGUGUGGA 4259 TCCACACG GGCTAGCTACAACGA CGGAGCGT 13008 6737 GCUCCGGC G UGUGGACC 4260 GGTCCACA GGCTAGCTACAACGA GCCGGAGC 13009 6739 UCCGGCGU G UGGACCU 4261 GAGGTCCA GGCTAGCTACAACGA ACGCCGGA 13010 6743 GCGUGUGG A CCUCUCCU 4262 AGGAGAGG GGCTAGCTACAACGA CCACACGC 13011 6752 CCUCUCCU A CGGGAGGA 4263 TCCTCCCG GGCTAGCTACAACGA AGGAGAGG 13012 6762 GGGAGGAG G UCACAUUC 4264 GAATGTGA GGCTAGCTACAACGA ACGACGC 13013 6765 AGGAGGUC A CAUUCCAG 4265 CTGGAATG GGCTAGCTACAACGA GACCTCCT 13014 6767 GAGGUCAC A UUCCAGGU 4266 ACCTGGAA GGCTAGCTACAACGA GTGACCTC 13015	\vdash				
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CREAT CONTROLOGY OF TROCOGRAPHS			4265		13014
6774 CAUUCCAG G UCGGGCUC 4267 GAGCCCGA GGCTAGCTACAACGA CTGGAATG 13016	6767	GAGGUCAC A UUCCAGGU	4266	ACCTGGAA GGCTAGCTACAACGA GTGACCTC	13015
	6774	CAUUCCAG G UCGGGCUC	4267	GAGCCCGA GGCTAGCTACAACGA CTGGAATG	13016

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6788 CUCAACCA A UACCUGGU 4270 ACCAGGTA GGCTAGCTACAACGA TGGT 6790 CAACCAAU A CCUGGUUG 4271 CAACCAGG GGCTAGCTACAACGA ATTG	CARLI FARM
6790 CAACCAAU A CCUGGUUG 4271 CAACCAGG GGCTAGCTACAACGA ATTG	
6795 AAUACCUG G UUGGGUCA 4272 TGACCCAA GGCTAGCTACAACGA CAGG	
6800 CUGGUUGG G UCACAGCU 4273 AGCTGTGA GGCTAGCTACAACGA CCAA	
6803 GUUGGGUC A CAGCUCCC 4274 GGGAGCTG GGCTAGCTACAACGA GACC	
6806 GGGUCACA G CUCCCAUG 4275 CATGGGAG GGCTAGCTACAACGA TGTG	ACCC 13024
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6824 GAGCCCGA A CCGGAUGU 4279 ACATCCGG GGCTAGCTACAACGA TCGG	GCTC 13028
6829 CGAACCGG A UGUAGCAG 4280 CTGCTACA GGCTAGCTACAACGA CCGG	TTCG 13029
6831 AACCGGAU G UAGCAGUG 4281 CACTGCTA GGCTAGCTACAACGA ATCC	GGTT 13030
6834 CGGAUGUA G CAGUGCUC 4282 GAGCACTG GGCTAGCTACAACGA TACA	TCCG 13031
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6839 GUAGCAGU G CUCACGUC 4284 GACGTGAG GGCTAGCTACAACGA ACTG	CTAC 13033
6843 CAGUGCUC A CGUCCAUG 4285 CATGGACG GGCTAGCTACAACGA GAGC	ACTG 13034
6845 GUGCUCAC G UCCAUGCU 4286 AGCATGGA GGCTAGCTACAACGA GTGA	GCAC 13035
6849 UCACGUCC A UGCUCACC 4287 GGTGAGCA GGCTAGCTACAACGA GGAC	GTGA 13036
6851 ACGUCCAU G CUCACCGA 4288 TCGGTGAG GGCTAGCTACAACGA ATGG	ACGT 13037
6855 CCAUGCUC A CCGACCCC 4289 GGGGTCGG GGCTAGCTACAACGA GAGC	ATGG 13038
6859 GCUCACCG A CCCCUCCC 4290 GGGAGGGG GGCTAGCTACAACGA CGGT	GAGC 13039
6868 CCCCUCCC A CAUUACAG 4291 CTGTAATG GGCTAGCTACAACGA GGGA	GGGG 13040
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6900 GUAGGCUG G CCAGGGGG 4299 CCCCCTGG GGCTAGCTACAACGA CAGC	
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6924 CCUCCUUG G CCAGCUCC 4301 GGAGCTGG GGCTAGCTACAACGA CAAG	
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6940 CUCAGCUA G CCAGCUGU 4304 ACAGCTGG GGCTAGCTACAACGA TAGC	
6944 GCUAGCCA G CUGUCUGC 4305 GCAGACAG GGCTAGCTACAACGA TAGC	
6947 AGCCAGCU G UCUGCGCC 4306 GGCGCAGA GGCTAGCTACAACGA AGCT	
	
6975 CGACAUAC A UUACCCAA 4313 TTGGGTAA GGCTAGCTACAACGA GTAT	
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6988 CCAAUAUG A CUCCCCAG 4317 CTGGGGAG GGCTAGCTACAACGA CATA	
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7003 AGACUUUG A CCUCAUCG 4319 CGATGAGG GGCTAGCTACAACGA CAAA	
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7018 CGAGGCCA A CCUCCUGU 4322 ACAGGAGG GGCTAGCTACAACGA TGGC	
7025 AACCUCCU G UGGCGGCA 4323 TGCCGCCA GGCTAGCTACAACGA AGGA	GGTT 13072

7000	CTICCUCUIO C CCCCO CC	1 4204	TOOMGOOD COOM COM CANCAL CANCAL	1 4 2 2 2 2 2
7028	CUCCUGUG G CGGCAGGA	4324	TCCTGCCG GGCTAGCTACAACGA CACAGGAG	13073
7031	CUGUGGCG G CAGGAGAU	4325	ATCTCCTG GGCTAGCTACAACGA CGCCACAG	13074
7038	GGCAGGAG A UGGGCGGU	4326	ACCGCCCA GGCTAGCTACAACGA CTCCTGCC	13075
7042	GGAGAUGG G CGGUAACA	4327	TGTTACCG GGCTAGCTACAACGA CCATCTCC	13076
7045	GAUGGGCG G UAACAUCA	4328	TGATGTTA GGCTAGCTACAACGA CGCCCATC	13077
7048	GGGCGGUA A CAUCACUC	4329	GAGTGATG GGCTAGCTACAACGA TACCGCCC	13078
7050	GCGGUAAC A UCACUCGC	4330	GCGAGTGA GGCTAGCTACAACGA GTTACCGC	13079
7053	GUAACAUC A CUCGCGUG	4331	CACGCGAG GGCTAGCTACAACGA GATGTTAC	13080
7057	CAUCACUC G CGUGGAGU	4332	ACTCCACG GGCTAGCTACAACGA GAGTGATG	13081
7059	UCACUCGC G UGGAGUCA	4333	TGACTCCA GGCTAGCTACAACGA GCGAGTGA	13082
7064	CGCGUGGA G UCAGAGAA	4334	TTCTCTGA GGCTAGCTACAACGA TCCACGCG	13083
7072	GUCAGAGA A UAAGGUAG	4335	CTACCTTA GGCTAGCTACAACGA TCTCTGAC	13084
7077	AGAAUAAG G UAGUUACC	4336	GGTAACTA GGCTAGCTACAACGA CTTATTCT	13085
7080	AUAAGGUA G UUACCCUG	4337	CAGGGTAA GGCTAGCTACAACGA TACCTTAT	13086
7083	AGGUAGUU A CCCUGGAC	4338	GTCCAGGG GGCTAGCTACAACGA AACTACCT	13087
7090	UACCCUGG A CUCUUUUG	4339	CAAAAGAG GGCTAGCTACAACGA CCAGGGTA	13088
7099	CUCUUUUG A CCCGCUUC	4340	GAAGCGGG GGCTAGCTACAACGA CAAAAGAG	13089
7103	UUUGACCC G CUUCGAGC	4341	GCTCGAAG GGCTAGCTACAACGA GGGTCAAA	13090
7110	CGCUUCGA G CGGAGGAG	4342	CTCCTCCG GGCTAGCTACAACGA TCGAAGCG	13091
7120	GGAGGAGG A UGAGAGAG	4343	CTCTCTCA GGCTAGCTACAACGA CCTCCTCC	13092
7131	AGAGAGAG G UGUCCAUU	4344	AATGGACA GGCTAGCTACAACGA CTCTCTCT	13093
7133	AGAGAGGU G UCCAUUCC	4345	GGAATGGA GGCTAGCTACAACGA ACCTCTCT	13094
7137	AGGUGUCC A UUCCGGCG	4346	CGCCGGAA GGCTAGCTACAACGA GGACACCT	13095
7143	CCAUUCCG G CGGAGAUC	4347	GATCTCCG GGCTAGCTACAACGA CGGAATGG	13096
7149	CGGCGGAG A UCCUGCGG	4348	CCGCAGGA GGCTAGCTACAACGA CTCCGCCG	13097
7154	GAGAUCCU G CGGAAAUC	4349	GATTTCCG GGCTAGCTACAACGA AGGATCTC	13098
7160	CUGCGGAA A UCCAAGAA	4350	TTCTTGGA GGCTAGCTACAACGA TTCCGCAG	13099
7169	UCCAAGAA G UUUCCUUC	4351	GAAGGAAA GGCTAGCTACAACGA TTCTTGGA	13100
7179	UUCCUUCA G CGUUACCC	4352	GGGTAACG GGCTAGCTACAACGA TGAAGGAA	13101
7181	CCUUCAGC G UUACCCAU	4353	ATGGGTAA GGCTAGCTACAACGA GCTGAAGG	13102
7184	UCAGCGUU A CCCAUAUG	4354	CATATGGG GGCTAGCTACAACGA AACGCTGA	13103
7188	CGUUACCC A UAUGGGCA	4355	TGCCCATA GGCTAGCTACAACGA GGGTAACG	13104
7190	UUACCCAU A UGGGCACG	4356	CGTGCCCA GGCTAGCTACAACGA ATGGGTAA	13105
7194	CCAUAUGG G CACGCCCG	4357	CGGGCGTG GGCTAGCTACAACGA CCATATGG	13106
7196	AUAUGGC A CGCCCGGA	4358	TCCGGGCG GGCTAGCTACAACGA GCCCATAT	13107
7198	AUGGGCAC G CCCGGAUU	4359	AATCCGGG GGCTAGCTACAACGA GTGCCCAT	13108
7204	ACGCCCGG A UUACAACC	4360	GGTTGTAA GGCTAGCTACAACGA CCGGGCGT	13109
7207	CCCGGAUU A CAACCCUC	4361	GAGGGTTG GGCTAGCTACAACGA AATCCGGG	13110
7210	GGAUUACA A CCCUCCAC	4362	GTGGAGGG GGCTAGCTACAACGA TGTAATCC	13111
7217	AACCCUCC A CUACUAGA	4363	TCTAGTAG GGCTAGCTACAACGA GGAGGGTT	13112
7220	CCUCCACU A CUAGAGCC	4364	GGCTCTAG GGCTAGCTACAACGA AGTGGAGG	13113
7226	CUACUAGA G CCCUGGAA	4365	TTCCAGGG GGCTAGCTACAACGA TCTAGTAG	13114
7237	CUGGAAAG A CCCAGACU	4366	AGTCTGGG GGCTAGCTACAACGA CTTTCCAG	13115
7243	AGACCCAG A CUACGUCC	4367	GGACGTAG GGCTAGCTACAACGA CTGGGTCT	13116
7246	CCCAGACU A CGUCCCUC	4368	GAGGGACG GGCTAGCTACAACGA AGTCTGGG	13117
7248	CAGACUAC G UCCCUCCG	4369	CGGAGGGA GGCTAGCTACAACGA GTAGTCTG	13118
7257	UCCCUCCG G UGGUACAC	4370	GTGTACCA GGCTAGCTACAACGA CGGAGGGA	13119
7260	CUCCGGUG G UACACGGG	4371	CCCGTGTA GGCTAGCTACAACGA CACCGGAG	13120
7262	CCGGUGGU A CACGGGUG	4372	CACCCGTG GGCTAGCTACAACGA ACCACCGG	13121
7264	GGUGGUAC A CGGGUGCC	4373	GGCACCCG GGCTAGCTACAACGA GTACCACC	13122
7268	GUACACGG G UGCCCAUU	4374	AATGGGCA GGCTAGCTACAACGA CCGTGTAC	13123
7270	ACACGGGU G CCCAUUGC	4375	GCAATGGG GGCTAGCTACAACGA ACCCGTGT	13124
7274	GGGUGCCC A UUGCCACC	4376	GGTGGCAA GGCTAGCTACAACGA GGGCACCC	13125
7277	UGCCCAUU G CCACCUGC	4377	GCAGGTGG GGCTAGCTACAACGA AATGGGCA	13126
7280	CCAUUGCC A CCUGCCAA	4378	TTGGCAGG GGCTAGCTACAACGA GGCAATGG	13127
7284	UGCCACCU G CCAAGGCC	4379	GGCCTTGG GGCTAGCTACAACGA AGGTGGCA	13128
			TOTAL AUGICULA	

7290	CUGCCAAG G CCCCUCCA	4380	TGGAGGGG GGCTAGCTACAACGA CTTGGCAG	13129
7299	CCCCUCCA A UACCACCU	4381	AGGTGGTA GGCTAGCTACAACGA TGGAGGGG	13130
7301	CCUCCAAU A CCACCUCC	4382	GGAGGTGG GGCTAGCTACAACGA ATTGGAGG	13131
7304	CCAAUACC A CCUCCACG	4383	CGTGGAGG GGCTAGCTACAACGA GGTATTGG	13132
7310	CCACCUCC A CGGAGGAA	4384	TTCCTCCG GGCTAGCTACAACGA GGAGGTGG	13133
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7326	AGAGGACG G UUGUUCUG	4386	CAGAACAA GGCTAGCTACAACGA CGTCCTCT	13135
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7335	UUGUUCUG A CAGAGUCC	4388	GGACTCTG GGCTAGCTACAACGA CAGAACAA	13137
7340	CUGACAGA G UCCACCGU	4389	ACGGTGGA GGCTAGCTACAACGA TCTGTCAG	13138
7344	CAGAGUCC A CCGUGUCU	4390	AGACACGG GGCTAGCTACAACGA GGACTCTG	13139
7347	AGUCCACC G UGUCUUCU	4391	AGAAGACA GGCTAGCTACAACGA GGTGGACT	13140
7349	UCCACCGU G UCUUCUGC	4392	GCAGAAGA GGCTAGCTACAACGA ACGGTGGA	13141
7356	UGUCUUCU G CCUUGGCG	4393	CGCCAAGG GGCTAGCTACAACGA AGAAGACA	13142
7362	CUGCCUUG G CGGAGCUC	4394	GAGCTCCG GGCTAGCTACAACGA CAAGGCAG	13143
7367	UUGGCGGA G CUCGCCAC	4395	GTGGCGAG GGCTAGCTACAACGA TCCGCCAA	13144
7371	CGGAGCUC G CCACAAAG	4396	CTTTGTGG GGCTAGCTACAACGA GAGCTCCG	13145
7374	AGCUCGCC A CAAAGACC	4397	GGTCTTTG GGCTAGCTACAACGA GGCGAGCT	13145
7380	CCACAAAG A CCUUCGGC	4398	GCCGAAGG GGCTAGCTACAACGA CTTTGTGG	13146
7387	GACCUUCG G CAGCUCUG	4399	CAGAGCTG GGCTAGCTACAACGA CTTTGTGG	13147
7390	CUUCGGCA G CUCUGAAU	4400	ATTCAGAG GGCTAGCTACAACGA CGAAGGTC	13148
7397	AGCUCUGA A UCAUCGGC	4401		
7400	UCUGAAUC A UCGGCCGC		GCCGATGA GGCTAGCTACAACGA TCAGAGCT	13150
7404	AAUCAUCG G CCGCUGAU	4402	GCGGCCGA GGCTAGCTACAACGA GATTCAGA	13151
		4403	ATCAGCGG GGCTAGCTACAACGA CGATGATT	13152
7407	CAUCGGCC G CUGAUAGA	4404	TCTATCAG GGCTAGCTACAACGA GGCCGATG	13153
7411	GGCCGCUG A UAGAGGUA	4405	TACCTCTA GGCTAGCTACAACGA CAGCGGCC	13154
7417	UGAUAGAG G UACGGCAA	4406	TTGCCGTA GGCTAGCTACAACGA CTCTATCA	13155
7419	AUAGAGGU A CGGCAACC	4407	GGTTGCCG GGCTAGCTACAACGA ACCTCTAT	13156
7422	GAGGUACG G CAACCGCC	4408	GGCGGTTG GGCTACCTACAACGA CGTACCTC	13157
7425	GUACGGCA A CCGCCCCC	4409	GGGGCGG GGCTACCTACAACGA TGCCGTAC	13158
7428	CGGCAACC G CCCCCCC	4410	GGGGGGG GGCTAGCTACAACGA GGTTGCCG	13159
7438	CCCCCCG A CCAGACCU	4411	AGGTCTGG GGCTAGCTACAACGA CGGGGGGG	13160
7443	CCGACCAG A CCUCCAAU	4412	ATTGGAGG GGCTAGCTACAACGA CTGGTCGG	13161
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7453	CUCCAAUG A CGGUGACG	4414	CGTCACCG GGCTAGCTACAACGA CATTGGAG	13163
7456	CAAUGACG G UGACGCAG	4415	CTGCGTCA GGCTAGCTACAACGA CGTCATTG	13164
7459	UGACGGUG A CGCAGGAU	4416	ATCCTGCG GGCTAGCTACAACGA CACCGTCA	13165
7461	ACGGUGAC G CAGGAUCC	4417	GGATCCTG GGCTAGCTACAACGA GTCACCGT	13166
7466	GACGCAGG A UCCGACGU	4418	ACGTCGGA GGCTAGCTACAACGA CCTGCGTC	13167
7471	AGGAUCCG A CGUUGAGU	4419	ACTCAACG GGCTAGCTACAACGA CGGATCCT	13168
7473	GAUCCGAC G UUGAGUCG	4420	CGACTCAA GGCTAGCTACAACGA GTCGGATC	13169
7478	GACGUUGA G UCGUACUC	4421	GAGTACGA GGCTAGCTACAACGA TCAACGTC	13170
7481	GUUGAGUC G UACUCCUC	4422	GAGGAGTA GGCTAGCTACAACGA GACTCAAC	13171
7483	UGAGUCGU A CUCCUCUA	4423	TAGAGGAG GGCTAGCTACAACGA ACGACTCA	13172
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7493	UCCUCUAU G CCCCCCU	4425	AGGGGGG GGCTAGCTACAACGA ATAGAGGA	13174
7511	GAGGGGGA G CCGGGGGA	4426	TCCCCCGG GGCTAGCTACAACGA TCCCCCTC	13175
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7525	GGAUCCCG A UCUCAGCG	4428	CGCTGAGA GGCTAGCTACAACGA CGGGATCC	13177
7531	CGAUCUCA G CGACGGGU	4429	ACCCGTCG GGCTAGCTACAACGA TGAGATCG	13178
7534	UCUCAGCG A CGGGUCUU	4430	AAGACCCG GGCTAGCTACAACGA CGCTGAGA	13179
7538	AGCGACGG G UCUUGGUC	4431	GACCAAGA GGCTAGCTACAACGA CCGTCGCT	13180
7544	GGGUCUUG G UCUACCGU	4432	ACGGTAGA GGCTAGCTACAACGA CAAGACCC	13181
7548	CUUGGUCU A CCGUGAGC	4433	GCTCACGG GGCTAGCTACAACGA AGACCAAG	13182
7551	GGUCUACC G UGAGCGAA	4434	TTCGCTCA GGCTAGCTACAACGA GGTAGACC	13183
7555	UACCGUGA G CGAAGAGG	4435	CCTCTTCG GGCTAGCTACAACGA TCACGGTA	13184
		L	L CACCOTA	

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7567	AGAGGCUG G CGAGGAUG	4437	CATCCTCG GGCTAGCTACAACGA CAGCCTCT	13186
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7578	AGGAUGUC G UCUGCUGC	4440	GCAGCAGA GGCTAGCTACAACGA GACATCCT	13189
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7585	CGUCUGCU G CUCGAUGU	4442	ACATCGAG GGCTAGCTACAACGA AGCAGACG	13191
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7597	GAUGUCCU A CACAUGGA	4445	TCCATGTG GGCTAGCTACAACGA AGGACATC	13194
7599	UGUCCUAC A CAUGGACG	4446	CGTCCATG GGCTAGCTACAACGA GTAGGACA	13195
7601	UCCUACAC A UGGACGGG	4447	CCCGTCCA GGCTAGCTACAACGA GTGTAGGA	13196
7605	ACACAUGG A CGGGCGCC	4448	GGCGCCG GGCTAGCTACAACGA CCATGTGT	13197
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7620	CCCUGAUC A CGCCAUGC	4452	TGGCGTGA GGCTAGCTACAACGA CAGGGCGC	13200
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		4453	GCGCATGG GGCTAGCTACAACGA GTGATCAG	13202
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7629	CGCCAUGC G CUGCGGAG	4456	CTCCGCAG GGCTAGCTACAACGA GCATGGCG	13205
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7642	GGAGGAAA G CAAGUUGC	4458	GCAACTTG GGCTAGCTACAACGA TTTCCTCC	13207
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7649	AGCAAGUU G CCCAUCAA	4460	TTGATGGG GGCTAGCTACAACGA AACTTGCT	13209
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7661	AUCAACGC G UUGAGCAA	4464	TTGCTCAA GGCTAGCTACAACGA GCGTTGAT	13213
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7681	UUUGCUGC G UCACCACA	4469	TGTGGTGA GGCTAGCTACAACGA GCAGCAAA	13218
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7761	GACUGCAA G UCCUGGAC	4491	GTCCAGGA GGCTAGCTACAACGA TTGCAGTC	13239
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7870	GCCCCCAC A UUCGGCCA	4515	TGGCCGAA GGCTAGCTACAACGA GTGGGGGC	13264
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	GGUUUUCU G CGUCCAAC	4549		13298
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8278	CACCGAGA G UGACAUCC	4606	GGATGTCA GGCTAGCTACAACGA TCTCGGTG	13355
8281	CGAGAGUG A CAUCCGUG	4607	CACGGATG GGCTAGCTACAACGA CACTCTCG	13356
8283	AGAGUGAC A UCCGUGUC	4608	GACACGGA GGCTAGCTACAACGA GTCACTCT	13357
8287	UGACAUCC G UGUCGAGG	4609	CCTCGACA GGCTAGCTACAACGA GGATGTCA	13358
8289	ACAUCCGU G UCGAGGAG	4610	CTCCTCGA GGCTAGCTACAACGA ACGGATGT	13359
8297	GUCGAGGA G UCAAUUUA	4611	TAAATTGA GGCTAGCTACAACGA TCCTCGAC	13360
8301	AGGAGUCA A UUUACCAA	4612	TTGGTAAA GGCTAGCTACAACGA TGACTCCT	13361
8305	GUCAAUUU A CCAAUGUU			13361
	AUUUACCA A UGUUGUGA	4613	AACATTGG GGCTAGCTACAACGA AAATTGAC	
8309		4614	TCACAACA GGCTAGCTACAACGA TGGTAAAT	13363
8311	UUACCAAU G UUGUGACU	4615	AGTCACAA GGCTAGCTACAACGA ATTGGTAA	13364
8314	CCAAUGUU G UGACUUGG	4616	CCAAGTCA GGCTAGCTACAACGA AACATTGG	13365
8317	AUGUUGUG A CUUGGCCC	4617	GGGCCAAG GGCTAGCTACAACGA CACAACAT	13366
8322	GUGACUUG G CCCCCGAA	4618	TTCGGGGG GGCTAGCTACAACGA CAAGTCAC	13367
8331	CCCCCGAA G CCAGACAG	4619	CTGTCTGG GGCTAGCTACAACGA TTCGGGGG	13368
8336	GAAGCCAG A CAGGCCAU	4620	ATGGCCTG GGCTAGCTACAACGA CTGGCTTC	13369
8340	CCAGACAG G CCAUAAGG	4621	CCTTATGG GGCTAGCTACAACGA CTGTCTGG	13370
8343	GACAGGCC A UAAGGUCG	4622	CGACCTTA GGCTAGCTACAACGA GGCCTGTC	13371
8348	GCCAUAAG G UCGCUCAC	4623	GTGAGCGA GGCTAGCTACAACGA CTTATGGC	13372
8351	AUAAGGUC G CUCACAGA	4624	TCTGTGAG GGCTAGCTACAACGA GACCTTAT	13373
8355	GGUCGCUC A CAGAGCGG	4625	CCGCTCTG GGCTAGCTACAACGA GAGCGACC	13374
8360	CUCACAGA G CGGCUUUA	4626	TAAAGCCG GGCTAGCTACAACGA TCTGTGAG	13375
8363	ACAGAGCG G CUUUAUAU	4627	ATATAAAG GGCTAGCTACAACGA CGCTCTGT	13376
8368	GCGGCUUU A UAUCGGGG	4628	CCCCGATA GGCTAGCTACAACGA AAAGCCGC	13377
8370	GGCUUUAU A UCGGGGGU	4629	ACCCCCGA GGCTAGCTACAACGA ATAAAGCC	13378
8377	UAUCGGGG G UCCUCUGA	4630	TCAGAGGA GGCTAGCTACAACGA CCCCGATA	13379
8385	GUCCUCUG A CUAAUUCA	4631	TGAATTAG GGCTAGCTACAACGA CAGAGGAC	13380
8389	UCUGACUA A UUCAAAAG	4632	CTTTTGAA GGCTAGCTACAACGA TAGTCAGA	13381
8399	UCAAAAGG G CAGAACUG	4633	CAGTTCTG GGCTAGCTACAACGA CCTTTTGA	13382
8404	AGGGCAGA A CUGCGGUU	4634	AACCGCAG GGCTAGCTACAACGA TCTGCCCT	13383
8407	GCAGAACU G CGGUUAUC	4635	GATAACCG GGCTAGCTACAACGA AGTTCTGC	13384
8410	GAACUGCG G UUAUCGCC	4636	GGCGATAA GGCTAGCTACAACGA CGCAGTTC	13385
8413	CUGCGGUU A UCGCCGGU	4637	ACCGCGA GGCTAGCTACAACGA AACCGCAG	
8416	CGGUUAUC G CCGGUGCC			13386
		4638	GGCACCGG GGCTAGCTACAACGA GATAACCG	13387
8420	UAUCGCCG G UGCCGCGC	4639	GCGCGGCA GGCTAGCTACAACGA CGGCGATA	13388
8422	UCGCCGGU G CCGCGCGA	4640	TCGCGCGG GGCTAGCTACAACGA ACCGGCGA	13389
8425	CCGGUGCC G CGCGAGCG	4641	CGCTCGCG GGCTAGCTACAACGA GGCACCGG	13390
8427	GGUGCCGC G CGAGCGGC	4642	GCCGCTCG GGCTAGCTACAACGA GCGGCACC	13391
8431	CCGCGCGA G CGGCGUGC	4643	GCACGCCG GGCTAGCTACAACGA TCGCGCGG	13392
8434	CGCGAGCG G CGUGCUGA	4644	TCAGCACG GGCTAGCTACAACGA CGCTCGCG	13393
8436	CGAGCGGC G UGCUGACG	4645	CGTCAGCA GGCTAGCTACAACGA GCCGCTCG	13394
8438	AGCGGCGU G CUGACGAC	4646	GTCGTCAG GGCTAGCTACAACGA ACGCCGCT	13395
8442	GCGUGCUG A CGACCAGC	4647	GCTGGTCG GGCTAGCTACAACGA CAGCACGC	13396
8445	UGCUGACG A CCAGCUGU	4648	ACAGCTGG GGCTAGCTACAACGA CGTCAGCA	13397
8449	GACGACCA G CUGUGGUA	4649	TACCACAG GGCTAGCTACAACGA TGGTCGTC	13398
8452	GACCAGCU G UGGUAAUA	4650	TATTACCA GGCTAGCTACAACGA AGCTGGTC	13399
8455	CAGCUGUG G UAAUACCC	4651	GGGTATTA GGCTAGCTACAACGA CACAGCTG	13400
8458	CUGUGGUA A UACCCUCA	4652	TGAGGGTA GGCTAGCTACAACGA TACCACAG	13401
8460	GUGGUAAU A CCCUCACA	4653	TGTGAGGG GGCTAGCTACAACGA ATTACCAC	13402
8466	AUACCCUC A CAUGUUAC	4654	GTAACATG GGCTAGCTACAACGA GAGGGTAT	13403
8468	ACCCUCAC A UGUUACUU	4655	AAGTAACA GGCTAGCTACAACGA GTGAGGGT	13404
8470	CCUCACAU G UUACUUGA	4656	TCAAGTAA GGCTAGCTACAACGA ATGTGAGG	13405
8473	CACAUGUU A CUUGAAAG	4657	CTTTCAAG GGCTAGCTACAACGA AACATGTG	13406
8481	ACUUGAAA G CCUCUGCG	4658	CGCAGAGG GGCTAGCTACAACGA TTTCAAGT	13407
8487	AAGCCUCU G CGGCCUGU	4659	ACAGGCCG GGCTAGCTACAACGA AGAGGCTT	
0107		1 -000	ACLOGUEG GGULAGUIACAAUGA AGAGGUTT	13408

8490	CCUCUGCG G CCUGUCGA	4660	TCGACAGG GGCTAGCTACAACGA CGCAGAGG	13409
8494	UGCGGCCU G UCGAGCUG	4661	CAGCTCGA GGCTAGCTACAACGA AGGCCGCA	13410
8499	CCUGUCGA G CUGCGAAG	4662	CTTCGCAG GGCTAGCTACAACGA TCGACAGG	13411
8502	GUCGAGCU G CGAAGCUC	4663	GAGCTTCG GGCTAGCTACAACGA AGCTCGAC	13412
8507	GCUGCGAA G CUCCAGGA	4664	TCCTGGAG GGCTAGCTACAACGA TTCGCAGC	13413
8515	GCUCCAGG A CUGCACGA	4665	TCGTGCAG GGCTAGCTACAACGA CCTGGAGC	13414
8518	CCAGGACU G CACGAUGC	4666	GCATCGTG GGCTAGCTACAACGA AGTCCTGG	13415
8520	AGGACUGC A CGAUGCUC	4667	GAGCATCG GGCTAGCTACAACGA GCAGTCCT	13416
8523	ACUGCACG A UGCUCGUG	4668	CACGAGCA GGCTAGCTACAACGA CGTGCAGT	13417
8525	UGCACGAU G CUCGUGUG	4669	CACACGAG GGCTAGCTACAACGA ATCGTGCA	13418
8529	CGAUGCUC G UGUGUGGA	4670	TCCACACA GGCTAGCTACAACGA GAGCATCG	13419
8531	AUGCUCGU G UGUGGAGA	4671	TCTCCACA GGCTAGCTACAACGA ACGAGCAT	13420
8533	GCUCGUGU G UGGAGACG	4672	CGTCTCCA GGCTAGCTACAACGA ACACGAGC	13421
8539	GUGUGGAG A CGACCUGG	4673	CCAGGTCG GGCTAGCTACAACGA CTCCACAC	13422
8542	UGGAGACG A CCUGGUCG	4674	CGACCAGG GGCTAGCTACAACGA CGTCTCCA	13423
8547	ACGACCUG G UCGUUAUC	4675	GATAACGA GGCTAGCTACAACGA CAGGTCGT	13424
8550	ACCUGGUC G UUAUCUGU	4676	ACAGATAA GGCTAGCTACAACGA GACCAGGT	13425
8553	UGGUCGUU A UCUGUGAA	4677	TTCACAGA GGCTAGCTACAACGA GACCAGGT	<u> </u>
	CGUUAUCU G UGAAAGUG			13426
8557 8563	CUGUGAAA G UGCGGGGA	4678 4679	CACTTTCA GGCTAGCTACAACGA AGATAACG	13427
			TCCCCGCA GGCTAGCTACAACGA TTTCACAG	13428
8565	GUGAAAGU G CGGGGACC	4680	GGTCCCCG GGCTAGCTACAACGA ACTTTCAC	13429
8571	GUGCGGGG A CCCAAGAG	4681	CTCTTGGG GGCTAGCTACAACGA CCCCGCAC	13430
8581	CCAAGAGG A CGCGGCGA	4682	TCGCCGCG GGCTAGCTACAACGA CCTCTTGG	13431
8583	AAGAGGAC G CGGCGAGC	4683	GCTCGCCG GGCTAGCTACAACGA GTCCTCTT	13432
8586	AGGACGCG G CGAGCCUA	4684	TAGGCTCG GGCTAGCTACAACGA CGCGTCCT	13433
8590	CGCGGCGA G CCUACGAG	4685	CTCGTAGG GGCTAGCTACAACGA TCGCCGCG	13434
8594	GCGAGCCU A CGAGUCUU	4686	AAGACTCG GGCTAGCTACAACGA AGGCTCGC	13435
8598	GCCUACGA G UCUUCACG	4687	CGTGAAGA GGCTAGCTACAACGA TCGTAGGC	13436
8604	GAGUCUUC A CGGAGGCU	4688	AGCCTCCG GGCTAGCTACAACGA GAAGACTC	13437
8610	UCACGGAG G CUAUGACU	4689	AGTCATAG GGCTAGCTACAACGA CTCCGTGA	13438
8613	CGGAGGCU A UGACUAGG	4690	CCTAGTCA GGCTAGCTACAACGA AGCCTCCG	13439
8616	AGGCUAUG A CUAGGUAC	4691	GTACCTAG GGCTAGCTACAACGA CATAGCCT	13440
8621	AUGACUAG G UACUCUGC	4692	GCAGAGTA GGCTAGCTACAACGA CTAGTCAT	13441
8623	GACUAGGU A CUCUGCCC	4693	GGGCAGAG GGCTAGCTACAACGA ACCTAGTC	13442
8628	GGUACUCU G CCCCCCC	4694	GGGGGGG GGCTAGCTACAACGA AGAGTACC	13443
8641	CCCCGGGG A CCCGCCCC	4695	GGGCCGGG GGCTACCTACAACGA CCCCGGGG	13444
8645	GGGGACCC G CCCCAACC	4696	GGTTGGGG GGCTAGCTACAACGA GGGTCCCC	13445
8651	CCGCCCCA A CCGGAAUA	4697	TATTCCGG GGCTAGCTACAACGA TGGGGCGG	13446
8657	CAACCGGA A UACGACUU	4698	AAGTCGTA GGCTAGCTACAACGA TCCGGTTG	13447
8659	ACCGGAAU A CGACUUGG	4699	CCAAGTCG GGCTAGCTACAACGA ATTCCGGT	13448
8662	GGAAUACG A CUUGGAGU	4700	ACTCCAAG GGCTAGCTACAACGA CGTATTCC	13449
8669	GACUUGGA G UUGAUAAC	4701	GTTATCAA GGCTAGCTACAACGA TCCAAGTC	13450
8673	UGGAGUUG A UAACAUCA	4702	TGATGTTA GGCTAGCTACAACGA CAACTCCA	13451
8676	AGUUGAUA A CAUCAUGC	4703	GCATGATG GGCTAGCTACAACGA TATCAACT	13452
8678	UUGAUAAC A UCAUGCUC	4704	GAGCATGA GGCTAGCTACAACGA GTTATCAA	13453
8681	AUAACAUC A UGCUCCUC	4705	GAGGAGCA GGCTAGCTACAACGA GATGTTAT	13454
8683	AACAUCAU G CUCCUCCA	4706	TGGAGGAG GGCTAGCTACAACGA ATGATGTT	13455
8692	CUCCUCCA A CGUAUCAG	4707	CTGATACG GGCTAGCTACAACGA TGGAGGAG	13456
8694	CCUCCAAC G UAUCAGUU	4708	AACTGATA GGCTAGCTACAACGA GTTGGAGG	13457
8696	UCCAACGU A UCAGUUGC	4709	GCAACTGA GGCTAGCTACAACGA ACGTTGGA	13458
8700	ACGUAUCA G UUGCACAC	4710	GTGTGCAA GGCTAGCTACAACGA TGATACGT	13459
8703	UAUCAGUU G CACACGAU	4711	ATCGTGTG GGCTAGCTACAACGA AACTGATA	13460
8705	UCAGUUGC A CACGAUGC	4712	GCATCGTG GGCTAGCTACAACGA GCAACTGA	13461
8707	AGUUGCAC A CGAUGCAU	4713	ATGCATCG GGCTAGCTACAACGA GTGCAACT	13462
8710	UGCACACG A UGCAUCUG	4714	CAGATGCA GGCTAGCTACAACGA CGTGTGCA	13463
8712	CACACGAU G CAUCUGGC	4715	GCCAGATG GGCTAGCTACAACGA ATCGTGTG	13464
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8714	CACGAUGC A UCUGGCAA	4716	TTGCCAGA GGCTAGCTACAACGA GCATCGTG	13465
8719	UGCAUCUG G CAAAAGGG	4717	CCCTTTTG GGCTAGCTACAACGA CAGATGCA	13466
8727	GCAAAAGG G UGUACUAC	4718	GTAGTACA GGCTAGCTACAACGA CCTTTTGC	13467
8729	AAAAGGGU G UACUACCU	4719	AGGTAGTA GGCTAGCTACAACGA ACCCTTTT	13468
8731	AAGGGUGU A CUACCUCA	4720	TGAGGTAG GGCTAGCTACAACGA ACACCCTT	13469
8734	GGUGUACU A CCUCACCC	4721	GGGTGAGG GGCTAGCTACAACGA AGTACACC	13470
8739	ACUACCUC A CCCGUGAC	4722	GTCACGGG GGCTAGCTACAACGA GAGGTAGT	13471
8743	CCUCACCC G UGACCCCA	4723	TGGGGTCA GGCTAGCTACAACGA GGGTGAGG	13472
8746	CACCCGUG A CCCCACCA	4724	TGGTGGGG GGCTAGCTACAACGA CACGGGTG	13473
8751	GUGACCCC A CCACCCCC	4725	GGGGGTGG GGCTAGCTACAACGA GGGGTCAC	13474
8754	ACCCCACC A CCCCCCUU	4726	AAGGGGG GGCTAGCTACAACGA GGTGGGGT	13475
8763	CCCCCUU G CGCGGGCU	4727	AGCCCGCG GGCTAGCTACAACGA AAGGGGGG	13476
8765	CCCCUUGC G CGGGCUGC	4728	GCAGCCCG GGCTAGCTACAACGA GCAAGGGG	13477
8769	UUGCGCGG G CUGCGUGG	4729	CCACGCAG GGCTAGCTACAACGA CCGCGCAA	13478
8772	CGCGGGCU G CGUGGGAG	4730	CTCCCACG GGCTAGCTACAACGA AGCCCGCG	13479
8774	CGGGCUGC G UGGGAGAC	4731	GTCTCCCA GGCTAGCTACAACGA GCAGCCCG	13480
8781	CGUGGGAG A CAGCUAGA	4732	TCTAGCTG GGCTAGCTACAACGA CTCCCACG	13481
8784	GGGAGACA G CUAGAAGC	4733	GCTTCTAG GGCTAGCTACAACGA TGTCTCCC	13482
8791	AGCUAGAA G CACUCCAG	4734	CTGGAGTG GGCTAGCTACAACGA TTCTAGCT	13483
8793	CUAGAAGC A CUCCAGUC	4735	GACTGGAG GGCTAGCTACAACGA GCTTCTAG	13484
8799	GCACUCCA G UCAACUCC	4736	GGAGTTGA GGCTAGCTACAACGA TGGAGTGC	13485
8803	UCCAGUCA A CUCCUGGC	4737	GCCAGGAG GGCTAGCTACAACGA TGACTGGA	13486
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8818	GCUAGGCA A CAUCAUCA	4740	TGATGATG GGCTAGCTACAACGA TGCCTAGC	13489
8820	UAGGCAAC A UCAUCAUG	4741	CATGATGA GGCTAGCTACAACGA GTTGCCTA	13490
8823	GCAACAUC A UCAUGUUU	4742	AAACATGA GGCTAGCTACAACGA GATGTTGC	13491
8826	ACAUCAUC A UGUUUGCA	4743	TGCAAACA GGCTAGCTACAACGA GATGATGT	13492
8828	AUCAUCAU G UUUGCACC	4744	GGTGCAAA GGCTAGCTACAACGA ATGATGAT	13493
8832	UCAUGUUU G CACCCACU	4745	AGTGGGTG GGCTAGCTACAACGA AAACATGA	13494
8834	AUGUUUGC A CCCACUCU	4746	AGAGTGGG GGCTAGCTACAACGA GCAAACAT	13495
8838	UUGCACCC A CUCUAUGG	4747	CCATAGAG GGCTAGCTACAACGA GGGTGCAA	
8843	CCCACUCU A UGGGUAAG	4748	CTTACCCA GGCTAGCTACAACGA GGGTGCAA	13496
8847	CUCUAUGG G UAAGGAUG	4749		13497
8853			CATCCTTA GGCTAGCTACAACGA CCATAGAG	13498
8856	UAAGGAUG A UUCUGAUG	4750 4751	CAGAATCA GGCTAGCTACAACGA CCTTACCC	13499
8862	UGAUUCUG A UGACUCAC		CATCAGAA GGCTAGCTACAACGA CATCCTTA	13500
8865		4752	GTGAGTCA GGCTAGCTACAACGA CAGAATCA	13501
8869	UUCUGAUG A CUCACUUC	4753	GAAGTGAG GGCTAGCTACAACGA CATCAGAA	13502
8880	GAUGACUC A CUUCUUCU	4754	AGAAGAAG GGCTAGCTACAACGA GAGTCATC	13503
	UCUUCUCC A UCCUUCUA	4755	TAGAAGGA GGCTAGCTACAACGA GGAGAAGA	13504
8889	UCCUUCUA G CCCAGGAG	4756	CTCCTGGG GGCTAGCTACAACGA TAGAAGGA	13505
8897	GCCCAGGA G CAACUUGA	4757	TCAAGTTG GGCTAGCTACAACGA TCCTGGGC	13506
8900	CAGGAGCA A CUUGAGAA	4758	TTCTCAAG GGCTAGCTACAACGA TGCTCCTG	13507
8910	UUGAGAAA G CCCUAGAC	4759	GTCTAGGG GGCTAGCTACAACGA TTTCTCAA	13508
8917	AGCCCUAG A CUGCCAGA	4760	TCTGGCAG GGCTAGCTACAACGA CTAGGGCT	13509
8920	CCUAGACU G CCAGAUCU	4761	AGATCTGG GGCTAGCTACAACGA AGTCTAGG	13510
8925	ACUGCCAG A UCUACGGG	4762	CCCGTAGA GGCTAGCTACAACGA CTGGCAGT	13511
8929	CCAGAUCU A CGGGGCUU	4763	AAGCCCCG GGCTAGCTACAACGA AGATCTGG	13512
8934	UCUACGGG G CUUGUUAC	4764	GTAACAAG GGCTAGCTACAACGA CCCGTAGA	13513
8938	CGGGGCUU G UUACUCCA	4765	TGGAGTAA GGCTAGCTACAACGA AAGCCCCG	13514
8941	GGCUUGUU A CUCCAUUG	4766	CAATGGAG GGCTAGCTACAACGA AACAAGCC	13515
8946	GUUACUCC A UUGAGCCA	4767	TGGCTCAA GGCTAGCTACAACGA GGAGTAAC	13516
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8954	AUUGAGCC A CUUGACCU	4769	AGGTCAAG GGCTAGCTACAACGA GGCTCAAT	13518
8959	GCCACUUG A CCUACCUC	4770	GAGGTAGG GGCTAGCTACAACGA CAAGTGGC	13519
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8970 UACCUCAG A UCAUUCAGOA 4772 CTGARTGA GCTACAGAGGA TCAGAGGA RACTCRAGA 13521 8978 AUCABUCA G CGACUCCA 4774 TOGAGTGA GCTACACAGGA GARATGAT 13522 8981 AUCAUCAG G CGACUCCA 4775 COTGAGGA GCTGACAGAGGA TGAATGAT 13523 8986 GGGACUCC A UGGUCUU 4775 CATGAGGA GCTGACAGAGG AGTGGAT 13525 8989 ACUCCAUG G UCUUAGCG 4777 GCTAAGA GCTACACAGGA GATGGAT 13526 8989 ACUCCAUG G UCUUAGCG 4778 RAARAGG GGCTACACAGGA CATAGACCA 13528 8997 GUGUAGC G CAUUUUCACU 4779 TGAAAAA GGCTACACAGGA CCTAAGACCA 13528 8999 CULAGGC A UGUUACCU 4780 AGTGAAAA GGCTACACAGGA CAAAATCC 13529 9010 UUCACUCC A UGUUACCU 4782 AGTGATACAGGA GAAAATCC 13530 9012 UUCACUCC A UGUUACU 4782 AGTGATACTAAGGA GACATCAAGAG 13532 9013 ACUCCAUA G UUACUCCC 4783 GGGAGTAA GGCTAGCTACAAGGA TCACACAGA 13533 9025 CUCCCAG G UGAAAUCA 4786 CCTATTTCA GGCTAGCTACAAGGA TCACACA				·	
1976 AUCAUUCA 6 CGACUCCA 4774 TEGAFTCE GECTAGCTACAACGA TOANTOAN 13523 13581 AUUCAGUG A CUCCAUGG 4775 CCATGGAG GECTAGCTACAACGA CGCTGAAT 13524 13586 GGGACUCC A UGGUCUUA 4776 TAAGACCA GGCTAGCTACAACGA CGCTGAAT 13526 13595 GGGUCUUA G UCUUAGGG 4777 GATAAGA GGCTAGCTACAACGA CATGGAGT 13526 13595 GGGUCUUA G CGCAUUUU 4778 ANANGGG GGCTAGCTACAACGA CATGGAGT 13526 13597 GUCUUAGG G CAUUUUCA 4779 TGAAAATG GGCTAGCTACAACGA CATGGAGT 13528 13597 GUCUUAGG G CAUUUUCA 4779 TGAAAATG GGCTAGCTACAACGA CATGGAGT 13528 13599 CUUAGGGC A UUUUCACUC 4780 AGTGAAGA GGCTAGCTACAACGA GCTAGGAG 13528 13590 CUUAGGGC A UUUUCACUC 4780 AGTGAACA 13567 13590 1000ACUCCA 4781 CTATGGAG GGCTAGCTACAACGA GAGAGAATGC 13530 13590 1000ACUCCA 4781 CTATGGAG GGCTAGCTACAACGA GAGAGAAACA 4781 CTATGGAG GGCTAGCTACAACGA GAGAGAAACA 4781 GGGAGAGTAA GGCTAGCTACAACGA GAGAGAAACA 4782 GGGAGATAA GGCTAGCTACAACGA GAGAGAAACA 4785 GAGAGATAA GGCTAGCTACAACGA ACTATGAGAG GAGAGAAACA 4785 GAGAGATAA GGCTAGCTACAACGA ACTATGAGAG 4784 CTATGGAG GGCTAGCTACAACGA ACTATGAGA GAGAGAACA 4785 GATGATTACA GGCTAGCTACAACGA TACATCTACAGA ACTATGAGAGA ACTATGAGAGA AUCAAACA 4785 GATGATTACAGAGA ACTATGAGAGA ACTAGAGA ACTATGAGAGA ACTAGAGA ACTA	8970	UACCUCAG A UCAUUCAG		CTGAATGA GGCTAGCTACAACGA CTGAGGTA	13521
8981 AUUCAGOG A CUCCAUGG 4775 CCATGGAG GGCTAGCTACACGA CGCTAGAT 13524 8989 GCGACUCC A UGGUCUUA 4776 TARGACCA GGCTAGCTACCACGA CATGGAGT 13526 8989 ACUCCAUG G UCUURAGG 4777 COCTAAGA GGCTAGCTACACGA CATGGAGT 13526 8995 UGUCUURAG C GCAUJUUC 4779 RAAAATGG GGCTAGCTACACGA GCACAACGA 13528 8997 GUUGUGG C AUUUUCA 4780 AGAAAATG GGCTAGCTACACGA GCACCAACGA 13528 8999 CUUAGCG C AUUUUCA 4781 CTATGGAG GGCTAGCTACACGA GCACAACGA 13529 9010 UUCACUCC A UAGUUACU 4782 AGTAACTA GGCTAGCTACACGA GGAGTAGA 13531 9011 UUCACUCC A UAGUUACU 4782 AGTAACTA GGCTAGCTACACGA GAGATATGA 13531 9016 CCCAMBGU A CUCCCCAG 4784 CTGGGGG GGCTAGCTACACGA CTGGGGA 13533 9020 CAGGUGAA A UCAALGG 4786 CCCTATTGA GGCTAGCTACACGA TATGTACA 13533 9034 UGAABUCA 4786 CCTATTGA GGCTAGCTACACGA TATTCACTGA 13533 9042 ALDAGGGGG 4786 CCTATGTACACAGA CTCATTGA 13534 <	8973	CUCAGAUC A UUCAGCGA		TCGCTGAA GGCTAGCTACAACGA GATCTGAG	13522
1998 GOGNCIUC A UGGUCUUA 4776	8978	AUCAUUCA G CGACUCCA	4774	TGGAGTCG GGCTAGCTACAACGA TGAATGAT	13523
1999 ACUICANIG G UCIULINGES 4777	8981	AUUCAGCG A CUCCAUGG	4775	CCATGGAG GGCTAGCTACAACGA CGCTGAAT	13524
8995 UGGUCULA G CGCALUUUC 4778 AAATTCC GGCTAGCTACAACGA CTAAGCA 13527 8997 GUCUAGGG G CAUUUUCA 4780 AGTGAAAA GGCTAGCTACAACGA GCGACAGA 13528 8999 CUUAGGG A UUUUCACU 4780 AGTGAAAA GGCTAGCTACAACGA GCGATAGA 13529 9010 UUCACUCA 4080 4781 CTATGGGG GGCTAGCTACAACGA GAACATAG 13530 9013 ACUCCAUA G UUACUCCC 4783 GGGAGTAA GGCTAGCTACAACGA TATGGAGT 13531 9013 ACUCCAUA G UUACUCCC 4783 GGGAGTTACAACGA TATGGAGT 13532 9025 CUCCCCAG G UAAAUCA 4786 CTATTGA GGCTAGCTACACAG TATGGAT 13534 9030 CAGGUGAA A UCAAUGAG 4786 CCTATTGA GGCTAGCTACACAG TAGTTCCA 13536 9039 UCAAUGAG G UGCAUCA 4786 TAGTGCCA GGCTAGCTACACAG ACTACTTCA 13537 9041 AGGGUGG CAUCAUGC 4789 GCATAGCTACACAGA CACCACCT 13539 9042 AGGGUGAC A CUCAGGA 4791 CTGGAGC GGCTAGCTACACAGA ACGA ATGATGCAC 13540 9049 GGCALICLI G CALGCCU <	8986	GCGACUCC A UGGUCUUA	4776	TAAGACCA GGCTAGCTACAACGA GGAGTCGC	13525
8999	8989	ACUCCAUG G UCUUAGCG	4777	CGCTAAGA GGCTAGCTACAACGA CATGGAGT	13526
	8995	UGGUCUUA G CGCAUUUU	4778	AAAATGCG GGCTAGCTACAACGA TAAGACCA	13527
9015 GCAUJUUC A CUCCAIAG 4781 CTATGGAG GCTAGCTACAAGGA GAAAATGC 13530 9010 UUCACUCC A UAGUUACUC 4782 AGTAACTA GGCTAGCTACAAGGA GAAAATGC 13530 9013 ACUCCAIAG UUACUCCC 4783 GGGGATGAA GGCTAGCTACAAGGA GAGTGAA 13532 9016 CCAUAGUU A CUCCCCAG 4784 CTGGGGAG GGCTAGCTACAAGGA AACTATGG 13532 9025 CUCCCCAG G UGAAAUCA 4785 TGATTTCA GGCTAGCTACAAGGA AACTATGG 13532 9026 CUCCCAG G UGAAAUCA 4785 TGATTTCA GGCTAGCTACAAGGA AACTATGG 13539 9030 CAGGUGAA A UCAAUAGG 4786 CCTATTGA GGCTAGCTACAAGGA TTCACCTG 13535 9034 UGAAAUCA A UAGGGUGG 4787 CCACCCTA GGCTAGCTACAAGGA TTCACCTG 13536 9039 UCAAUAGG UGGCAUCA 4788 TGATGCCA GGCTAGCTACAAGGA CTATTTCA 13536 9044 AGGGUGCC A UCAUGCCU 4789 GCATGATG GGCTAGCTACAAGGA CCTATTGA 13537 9042 AUAGGGUG G CAUCAUGC 4789 GCATGATG GGCTAGCTACAAGGA CCACCTT 13538 9044 AGGGUGCC A UCAUGCCU 4789 GCATGATG GGCTAGCTACAAGGA CCACCTT 13538 9046 AGGUGCAUCA UGCCUCAG 4791 CTGAGGCA GGCTAGCTACAAGGA CACCCTT 13540 9049 GGCAUCAU G CCUCAGGA 4792 TCCTGAGG GGCTAGCTACAAGGA AGAACCCCCAC 13540 9059 CUCAGGAA A CUUGGGGU 4793 ACCCCAAG GGCTAGCTACAACGA ATCATCGC 13541 9066 AACUUGGG UACCCCCU 4794 GGGTGGTACAACGA ACCCACCT 13540 9067 CUCAGGAA A CUUGGGGU 4799 AGGGTGG GGCTAGCTACAACGA ACCCCACT 13540 9068 ACCUUGGG UACCACCC 4794 GGGTGGTACAACGA CCCCAACT 13542 9070 CCACCCUU G GGAACCU 4795 AAGGGTGG GGCTAGCTACAACGA ACCCCAAG 13545 9071 GGGGUACC A CCCUUGCG 4796 GGCAAGGTG GGCTACCTACAACGA ACCCCAAG 13545 9071 CCACCCUU G GGAACCU 4795 AAGGGTGG GCTAGCTACAACGA ACCCCAAG 13545 9071 CCACCCUU G GGAACCU 4796 GGCAAGGG GGCTAGCTACAACGA ACGCAAGT 13546 9081 ACCUUGGA A CCUGGAGA 4798 TCTCAGG GGCTAGCTACAACGA ACCCCAAG 13545 9071 CCACCCUU G CGAACCU 4796 GGCAAGGG GGCTAGCTACAACGA ACCCCAAG 13546 9081 ACCUUGGA A CCUGGAGA 4798 TCTCAGG GGCTAGCTACAACGA ACCCCAAG 13546 9081 ACCUUGGA A CCUGGAGA 4798 TCTCAGG GGCTAGCTACAACGA ACCCCAAG 13546 9081 ACCUGGAA CUGGGCC 4800 GCCAACG GGCTAGCTACAACGA ACCCCAAG 13546 9081 ACCUGGAA CUGGGCC 4800 GCCAACG GGCTAGCTACAACGA CTCCACGT 13569 9081 ACCUGGAA CUGGGCC 4800 GCCAACG GGCTAGCTACAACGA CTCCACGC 13559 9109 AAGGUACC A CCUGGAGA 4800 TCCCCAAG GGCTAGCTACAACGA ACCTGCC 1	8997	GUCUUAGC G CAUUUUCA	4779	TGAAAATG GGCTAGCTACAACGA GCTAAGAC	13528
9010 UUCACUCC A UAGUUACU 4782 AGTAACTA GGCTAGCTACAACGA GGAGTGAA 13531 9013 ACUCCADA G UUACUCCC 4783 GGGAGTAA GGCTAGCTACAACGA TATGGAGT 13539 9016 CCAUAGUU A CUCCCCAG 4784 CTGGGGAG GGCTAGCTACAACGA ATTGGAGT 13539 9025 CUCCCCAG G UGAAAUCA 4785 TGATTTCA GGCTAGCTACAACGA ATTGGAGGA GAGTAGCTACAACGA ACTATGA 13531 9025 CUCCCCAG G UGAAAUCA 4785 TGATTTCA GGCTAGCTACAACGA TCGGGGAG 13534 9030 CAGGGUGAA A UAGAUGA 4785 TGATTTCA GGCTAGCTACAACGA TCGGCGAG 13534 9031 UGAAUAGA A UAGAGGUG 4788 CCCACCTA GGCTAGCTACAACGA TCACCCTG 13536 9032 UCAAUAGG G UGGCAUCA 4788 TGATGCCA GGCTAGCTACAACGA CACCCTATTCA 13536 9042 AUAGGGUG G CAUCAUGC 4799 GCATGATG GGCTAGCTACAACGA CACCCTAT 13539 9044 AGGGUGC A UCAUGCC 4799 AGGCATGA GGCTAGCTACAACGA CACCCTAT 13539 9047 GUGGCAUC A UGCCUCAG 4791 CTGAGGG GGCTAGCTACAACGA GCCACCCT 13539 9049 GGCAUCAU GCCUCAG 4791 CTGAGGG GGCTAGCTACAACGA GCCACCCT 13539 9049 GGCAUCAU GCCUCAG 4791 CTGCAGGG GGCTAGCTACAACGA GTGCCC 13541 9059 CUCAGGAA A CUUGGGGU 4793 ACCCCAAG GGCTAGCTACAACGA TTCCTGAG 13542 9066 CUUGGGGU A CACCCCU 4794 GGGTGGTA GGCTACAACGA TTCCTGAG 13542 9071 GGGGUACU G CACCCCU 4795 AAGGGTGG GGCTAGCTACAACGA CACCCATT 13549 9071 GGGGUACU G CACCCCU 4795 AAGGGTGG GGCTAGCTACAACGA CACCCAACTT 13546 9071 GGGGUACA CCCCCCU 4795 AAGGGTGG GGCTAGCTACAACGA CACCCAACTT 13546 9071 GCGCCUU G CGAAACCU 4797 CAGGTTCG GGCTACAACGA CACCCAACTT 13546 9071 GCGCGAGA A CUUGGGGU 4797 CAGGTTCG GGCTACAACGA CCCCAAGTT 13547 9081 CCUUGCGA A CCUGGAGA 4797 CAGGTTCG GGCTACAACGA CCCCAAGTT 13547 9081 CCUUGCGA A CCUGGAGA 4797 CAGGTTCG GGCTACAACGA CCCCAAGTT 13549 9091 CUGGGGUA CACCCCU 4795 AAGGGTG GGCTACAACGA CCCCAAGTT 13549 9091 CUGGGGUA CACCCCU 4799 GCCCGATG GGCTACAACGA CCCCAAGT 13547 9081 CCUGCCCA A CCUGGAGA 4800 TGGCCCG AGCTACAACGA CCCCAAGT 13549 9091 CUGGAGAC A CCUGGAGG 4801 TGCCCG GGCTAGCTACAACGA CCCCAAGT 13559 9096 GCCAAACU G CCCAACGU 4801 ACCCCCCCCC GGCTAGCTACAACGA GCCTCCCC 13559 9109 AAGUUC G CCCAAGGG 4801 TGCCCG GGCTAGCTACAACGA CCCCAGGT 13559 9110 GGCCAAACU G CCCAAGGG 4801 TGCCCGA GGCTACCTACAACGA ACCCCCCC 13559 9111 GGGGUAC C CACCCUU 4801 ACCCCCCC 4801	8999	CUUAGCGC A UUUUCACU	4780	AGTGAAAA GGCTAGCTACAACGA GCGCTAAG	13529
9010 UUCACUCC A UNGUUACU 4782 AGTANCTA GGCTAGCTACAACGA GGAGTGAA 13531 9013 ACUCCALA G UUACUCCC 4783 GGGAGTAA GGCTAGCTACAACGA TATGGAGT 13539 9016 CCAUAGUU A CUCCCCAG 4784 CTGGGGAG GGCTACCTACAACGA TATGGAGT 13539 9025 CUCCCCAG G UGAAAUCA 4785 TGATTTCA GGCTAGCTACAACGA AACTATGAG 9030 CAGGUGAA A UCAAUAGG 4786 CCTATTGA GGCTAGCTACAACGA CTGGGGAG 13534 9030 CAGGUGAA A UAAGAUGA 4785 TGATTTCA GGCTAGCTACAACGA TCACCTG 13539 9031 UGAAUAGA A UAGAGUGG 4787 CCACCCTA GGCTAGCTACAACGA TCACCTG 13536 9039 UCAAUAGG G UGGCAUCA 4788 TGATGCAC GGCTAGCTACAACGA CTCACTTCA 13536 9040 AGGGUGA A UCAUGCCU 4799 GCATGATTGA GGCTAGCTACAACGA CACCCTAT 13539 9041 AGGGUGA A UCAUGCCU 4790 AGGCATGAT GGCTACAACGA CACCCTAT 13539 9042 AUAGGGUG A UCAUGCCU 4791 CTGAGGG GGCTAGCTACAACGA GCCACCCT 13539 9043 GGCAUCAU G CCUCAGC 4791 CTGAGGG GGCTAGCTACAACGA GGCACCCCT 13539 9046 AGGGUGAU G CCUCAGG 4791 CTGCAGG GGCTAGCTACAACGA GGCACCCCT 13541 9059 CUCAGGAA A CUUGGGGU 4793 ACCCCAAG GGCTACCTACAACGA TGCACCC 13540 9066 CUUGGGGU A CCACCCU 4795 AAGGGTGG GGCTACCTACAACGA TCCTAGG 13541 9070 CCACCCUU G CGAACCUG 4796 GGCAGGG GGCTAGCTACAACGA CACCCAACTT 13549 9081 CCUUGGGGU A CCACCCUU 4795 AAGGGTGG GGCTAGCTACAACGA CACCCAACTT 13549 9081 CCUUGCGA A CCUCGGAGA 4797 CAGGTCA GGCTACCTACAACGA CACCCAGT 13540 9081 CCUUGCGA A CCUCGGAGA 4797 CAGCTCT GGCTACAACAGA ACCCCCC 13546 9091 CUGAGGAC A CCCCCCUU 4795 AAGGGTGG GGCTAGCTACAACGA CACCCAGT 13546 9091 CUGAGGAC A CCCCGGAGA 4797 CAGCTCT GGCTACAACGA ACCCCAGT 13546 9091 CUGAGGAC A CCCCGACCU 4797 CAGCTCT GGCTACAACGA ACCCCAGT 13546 9091 CUGAGACC A UCGGGCCA 4800 TGCCCAG GGCTACCTACAACGA CCCCAGT 13549 9091 ACCUGCGA A CCUGAGGG 4800 TGCCCAG GGCTACCTACAACGA CCCCCAGT 13549 9091 ACCUGCGA A CCUGAGGG 4800 TGCCCAG GGCTACCTACAACGA CCCCCAGT 13559 9091 GGCCAGAA O UGUCCCC 4800 TGCCCAG GGCTACCTACAACGA CCCCCAGT 13559 9109 AAGUUC G CCAAACCU 4801 ACCTCCTGG GGCTACCTACAACGA CCCCCAGT 13559 9109 AAGUUC G CCAAACCU 4801 ACCTCCTGG GGCTACCTACAACGA CCCCCAGT 13559 9119 AAGUCCA CUGAGCC 4801 GCCCGAG GGCTACCTACAACGA GCCCCCC 13559 9119 GCCAGAAC U GCCCAGC 4801 TGCCCAG GGCTACCTACAACGA	9005	GCAUUUUC A CUCCAUAG	4781	CTATGGAG GGCTAGCTACAACGA GAAAATGC	13530
9013 ACUCCAUA G UUACUCCC 4783 GGGAGTAA GGCTAGCTACAACGA TATGGAGT 13532 9016 CCAUAGUU A CUCCCCAG 4784 CTGGGGAG GGCTAGCTACAACGA ACTATGG 13533 9025 CUCCCAG G UBABAUCA 4785 TGATTCA GGCTAGGTACAACGA ACTATGG 13533 9036 CAGGUGAA A UCAAUAGG 4786 CCTATTGA GGCTAGGTACAACGA TCCACCT 13535 9037 UGAAUACA A UAGGGUGG 4787 CCACCCTA GGCTAGGTACAACGA TCCACCT 13536 9039 UCAAUAGG UGGCAUCA 4788 TGATGCCA GGCTAGCTACAACGA TCCACCT 13536 9040 UGAAUACA A UACAGGUGG 4788 TGATGCCA GGCTAGCTACAACGA TCCACCT 13536 9041 AGGGUGG C UACAUCCU 4790 AGGCATGA GGCTAGCTACAACGA CCTATTGA 13537 9042 AUAGGGUG C AUCAUCCU 4790 AGGCATGA GGCTAGCTACAACGA CCCCTAT 13539 9044 AGGGUGG C UACAUCCU 4790 AGGCATGA GGCTAGCTACAACGA CCCCTAT 13539 9047 GUGGCAUCA UGCCUCAG 4791 CTGAGGCA GGCTAGCTACAACGA CACCCTAT 13540 9049 GGCAUCAU G CUUAGGGA 4792 TCCTGAGGCA GGCTAGCTACAACGA GATCACCC 13540 9049 GGCAUCAU G CUUAGGGA 4792 TCCTGAGGCA GGCTAGCTACAACGA CCCACCT 13540 9059 CUCAGGAA A CUUAGGGU 4793 ACCCCAAG GGCTAGCTACACGA TCAATGGC 13540 9066 AACUUGGG UACCACCC 4794 GGGTGGTA GGCTAGCTACACGA TCAATGGC 13540 9070 GGGGUACC A CCCCUU 4795 AAGGGTGG GGCTAGCTACAACGA CCCCAAGT 13540 9071 GGGGUACC A CCCCUU 4795 AAGGGTGG GGCTAGCTACAACGA ACCCCAAG 13544 9081 CUUGGGG A CCUCAGA 4798 GCCAAGGG GGCTAGCTACAACGA ACCCCAAG 13544 9081 ACCUUGGGA C ACCCCUU 4797 CAGCTTUG GGCTAGCTACAACGA ACCCCAAG 13540 9091 CUCAGGAA A CCUGAGAA 4798 TCTCAGG GGCTAGCTACAACGA GTCCCC 13545 9091 CUCUGGAA C CUCUGGG 4799 GCCGATG GGCTAGCTACAACGA AGGGTGC 13540 9091 CUCUGGAA C CUCUGGG 4799 GCCGATG GGCTAGCTACAACGA GTCCCC 13549 9091 CUCUGGAAC A CCUGAGAG 4798 GCCCGATG GGCTAGCTACAACGA CTCCCAGG 13540 9091 CUCUGGAAC A CCCCCACCUU 4800 AGGGCG GGCTAGCTACAACGA CTCCCAGG 13540 9091 CUGAGAACA UGCGGC 4800 GCCAGAGG GGCTAGCTACAACGA CTCCCAG 13540 9091 CUGAGACC UGUCCCA 4800 GCCAGAGG GGCTAGCTACAACGA CTCCCCC 135540 9109 AAGUGUUC G CUAAGCC 4800 GCCAGAGG GGCTAGCTACAACGA ACCTCCC 13559 9109 AAGUGUUC G CUAAGCC 4800 GCCAGAGG GGCTAGCTACAACGA ACCTCCC 13559 9119 GCCAGAGU G UGCCACG 4800 GCCAGAGG GGCTAGCTACAACGA ACCTCCC 13559 9110 GCGCAGAG G CUAAGCC 4800 GCCAGAGG GCCTAGCTACAACGA ACCT	9010	UUCACUCC A UAGUUACU	4782		
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9068 CUUGGGGU A CCACCUU 4795 AAGGGTGG GCTAGCTACAACGA ACCCCAG 13544 9071 GGGGUACC A CCCUUGCG 4796 CGCAAGGG GGCTAGCTACAACGA GGTACCCC 13545 9077 CCACCCUU G CGAACCUG 4797 CAGGTTACG GGCTACAACGA AAGGGTGG 13546 9081 CCUUGCGA A CUUGGAGA 4798 TCTCCAGG GGCTAGCTACAACGA TCCCAGGT 13547 9089 ACCUGGAG A CUCGGGCA 4800 TGGCCGAG GGCTAGCTACAACGA CTCCAGGT 13549 9096 GACAUCGG G CCAGAAGU 4801 ACTTCTGG GGCTAGCTACAACGA CCGATGCC 13551 9103 GGCCAGAA G UGUUCGCG 4802 CGCGAAC GGCTAGCTACAACGA TCTCTGG 13551 9105 CCAGAAGU G UUCGCGCU 4803 AGCGCGAA GGCTAGCTACAACGA ACTTCTGG 13552 9105 ACAGGUUC G CUAAGCU 4804 GCTTAGCC GCTAGCTACAACGA ACTTCTGG 13552 9111 GUGUUCGC G CUAAGCU 4805 TAGCTTAG GGCTAGCTACAACGA ACTTCTGG 13554 9111 GUGUUCGC G CUAAGCU 4805 TAGCTTAG GGCTAGCTACAACGA ACCTTAGC 13555 9119 GCUAAGCU A CUGUUCA 4805 ACAGGTAG GGCTAGCTACAACGA	9059	CUCAGGAA A CUUGGGGU	4793	ACCCCAAG GGCTAGCTACAACGA TTCCTGAG	13542
9071 GGGGUACC A CCCUUGCG 4796 CGCAAGGG GGCTAGCTACAACGA GGTACCCC 13545 9077 CCACCCUU G CGAACCUG 4797 CAGGTTCG GGCTAGCTACAACGA AAGGGTGG 13546 9081 CCUUGCGA A CCUUGGGA 4798 TCTCCAGG GGCTAGCTACAACGA TCGCCAGG 13548 9089 ACCUGGA A CUUGGGCC 4800 TGGCCCGA GGCTAGCTACAACGA CTCTCCAG 13549 9091 CUGGAGAC A UCGGGCCA 4801 ACTTCTGG GGCTAGCTACAACGA ACTTCCAG 13559 9103 GGCCAGAA G UUUCGCG 4802 CGCGAACA GGCTAGCTACAACGA ACTTTCGG 13551 9105 CCAGAAGU G UUCGCGU 4803 AGCGCAAA GGCTAGCTACAACGA ACTTTCGG 13552 9109 AAGUGUC G CUAAGCUA 4805 TAGCTTAGC GGCTAGCTACAACGA ACACTTTAGC 13552 9111 GUGUUCGC G CUAAGCUA 4806 GACAGTAG GGCTAGCTACAACGA ACTTAGCCAACGA GGTTAGCTACAACGA ACT	9066	AACUUGGG G UACCACCC	4794	GGGTGGTA GGCTAGCTACAACGA CCCAAGTT	13543
9077 CCACCCUU G CGAACCUG 4797 CAGGTTCG GGCTAGCTACAACGA AAGGGTGG 13546 9081 CCUUGCGA A CCUGGAGA 4798 TCTCCAGG GGCTAGCTACAACGA TCGCAAGG 13547 9089 ACCUGGAG A CAUCGGC 4799 GCCCGATG GGCTAGCTACAACGA CTCCAGGT 13548 9091 CUGGAGAC A UCGGGCC 4800 TGGCCCGA GGCTAGCTACAACGA CTCCAGGT 13549 9096 GACAUCGG G CCAGAAGU 4801 ACTTCTGG GGCTAGCTACAACGA CCGATGT 13550 9103 GGCCAGAA G UGUCGCG 4802 CGCGAACA GGCTAGCTACAACGA ACTTCTGG 13551 9109 AAGUGUC G CUAAGCU 4803 AGCGCGAA GGCTAGCTACAACGA ACTTCTGG 13552 9111 GUGUUCGC G CUAAGCU 4805 TAGCTTAG GGCTAGCTACAACGA ACTT 13553 9111 GUGUUCGC G CUAAGCU 4806 GACAGTAG GGCTAGCTACAACGA ACTTTCG 13554 9116 CGCGAUAG C CUAUGUC 4806 GACAGTAGCTACAACGA ACTTACCAACGA GCTACCAACGA ACTTACAACGA ACTTACAACGA ACTTACAACGA ACTTACAACGA ACTTACAACGA ACTTACAACGA CUUCCAAGCA GGCGACCC 4807 TGGGACAG GGCTACCTACAACGA ACTTACCAACGA ACTTACAACGA ACTTACAACG	9068	CUUGGGGU A CCACCCUU	4795	AAGGGTGG GGCTAGCTACAACGA ACCCCAAG	13544
9081 CCUUGCGA A CCUGGAGA 4798 TCTCCAGG GGCTAGCTACAACGA TCGCAAGG 13547 9089 ACCUGGAG A CAUCGGC 4799 GCCCGATG GGCTAGCTACAACGA CTCCAGGT 13548 9091 CUGGAGAC A UCGGGCCA 4800 TGGCCCGA GGCTAGCTACAACGA CTCCAGGT 13549 9096 GACAUCGG C CCAGAAGU 4801 ACTTCTGG GGCTAGCTACAACGA CCGATGTC 13550 9103 GGCCAGAA G UGUUCGC 4802 CGCGAACA GGCTACCAACGA CTCTTGG 13551 9105 CCAGAAGU G UUCGCGCU 4803 AGCGCGAA GGCTACCAACGA ACTTCTGG 13552 9109 AAGUGUUC G CUAAGCU 4805 TAGCTTAG GGCTAGCTACAACGA ACTTCTGG 13552 9111 GUGUUCGC G CUAAGCUA 4805 TAGCTTAG GGCTAGCTACAACGA CGCAACCA 13554 9116 CGCGCACA 4806 GACAGTAG GGCTAGCTACAACGA AGCTTAGC 13555 9119 GCUAAGCU A CUGUCCCA 4807 TGGGACAG GGCTAGCTACAACGA AGCTTAGC 13557 9122 AAGCUACU G UCCCAGGG 4808 CCCTGGGA GGCTACCTACAACGA AGCTTCCCC 13559 9138 GGGGAGG G CCACCUGU 4810 ACCCACGG GGCTACCTACAACGA AGCTCCCC 13559	9071	GGGGUACC A CCCUUGCG	4796	CGCAAGGG GGCTAGCTACAACGA GGTACCCC	13545
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9991 CUGGAGAC A UCGGCCA 4800 TGGCCGA GGCTAGCTACAACGA GTCTCCAG 13549 9996 GACAUCGG G CCAGAAGU 4801 ACTTCTGG GGCTAGCTACAACGA CCGATGTC 13550 9103 GGCCAGAA G UGUUCGC 4802 CGCGAACG GGCTAGCTACAACGA ACTTCTGG 13551 9109 AAGUGUC G CGUAAGC 4804 GCTTAGCG GGCTAGCTACAACGA ACACACTT 13552 9111 GUGUUCGC G CUAAGCUA 4805 TAGCTTAG GGCTAGCTACAACGA GCGAACAC 13554 9116 CGGGCUAA G CUACUGUC 4806 GACAGTAG GGCTAGCTACAACGA ACCTTAGC 13555 9119 GCUAAGCU A CUCCAGGG 4808 CCCTGGGA GGCTAGCTACAACGA AGCTTAGC 13556 9122 AAGCUACU UCCCAGGG 4808 CCCTGGGA GGCTAGCTACAACGA AGCTCCCC 13557 9138 GGGGGAGG CCCACCUGU 4810 ACAGGTG GGCTAGCTACAACGA AGCTCCCCC 13559 9144 </td <td>9089</td> <td>ACCUGGAG A CAUCGGGC</td> <td>4799</td> <td>GCCCGATG GGCTAGCTACAACGA CTCCAGGT</td> <td>13548</td>	9089	ACCUGGAG A CAUCGGGC	4799	GCCCGATG GGCTAGCTACAACGA CTCCAGGT	13548
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9122 AAGCUACU G UCCCAGGG 4808 CCCTGGGA GGCTAGCTACAACGA AGTAGCTT 13557 9138 GGGGGAGG G CCGCCACC 4809 GGTGGCG GCTAGCTACAACGA CCTCCCCC 13558 9141 GGAGGGC G CCACCUGU 4810 ACAGGTGG GGCTAGCTACAACGA GGCCCCC 13559 9144 GGGCCGCC A CCUGUGGC 4811 GCCACAGG GGCTAGCTACAACGA GGCGGCCC 13560 9148 CGCCACCU G UGGCAGGU 4812 ACCTGCCA GGCTAGCTACAACGA AGGTGGCG 13561 9151 CACCUGUG G CAGGUACC 4813 GGTACCTG GGCTAGCTACAACGA CACAGGTG 13562 9155 UGUGGCAG G UACCUCUU 4814 AAGAGGTA GGCTACCAACGA CTGCCACA 13563 9157 UGGCAGGU A CCUCUUCA 4815 TGAAGAGG GGCTAGCTACAACGA ACCTGCCA 13564 9166 CCUCUUCA A CUGGGCAG 4816 CTGCCCAG GGCTAGCTACAACGA TGAAGGG 13565 9171 UCAACUGG G CAGUAAAG 4817 CTTTACTG GGCTACAACGA CCAGTTGA 13567 9180 CAGUAAAG A CUCAACU 4818 GGTCTTTA GGCTACAACGA TTGCCCAGT 13568 9185 AAGACCAA A CUCAAACU 4820 AGTTGGG GGCTAGCTACAACGA TTG					
9138 GGGGGAGG CCGCCACC 4809 GGTGGCGG GGTTGCTACAACGA CCTCCCC 13558 9141 GGAGGGC G CCACCUGU 4810 ACAGGTGG GGCTAGCTACAACGA GGCCCCC 13559 9144 GGGCCGCC A CCUGUGGC 4811 GCCACAGG GGCTAGCTACAACGA AGGTGGCG 13560 9148 CGCCACCU G UGGCAGGU 4812 ACCTGCCA GGCTAGCTACAACGA AGGTGGCG 13561 9151 CACCUGUG G CAGGUACC 4813 GGTAGCTAGCAACGA CACAGGTG 13562 9155 UGUGGCAG G UACCUCUU 4814 AAGAGGTA GGCTAGCTACAACGA CTGCCCAC 13563 9157 UGGCAGGU A CUCCUCUCA 4815 TGAAGAGG GGCTAGCTACAACGA ACCTGCCA 13564 9166 CCUCUUCA A CUGGGCAG 4816 CTGCCCAG GGCTAGCTACAACGA CCAGTTGA 13565 9171 UCAACUGG G CAGUAAAG 4817 CTTTACTG GGCTAGCTACAACGA TCGCCAGT 13567 9180 CAGUAAA					<u> </u>
9141 GGAGGGCC G CCACCUGU 4810 ACAGGTGG GGCTAGCTACAACGA GGCCCTCC 13559 9144 GGGCCGCC A CCUGUGGC 4811 GCCACAGG GGCTAGCTACAACGA GGCGGCCC 13560 9148 CGCCACCU G UGGCAGGU 4812 ACCTGCCA GGCTAGCTACAACGA AGGTGGCG 13561 9151 CACCUGUG G CAGGUACC 4813 GGTACCTG GGCTAGCTACAACGA CACAGGTG 13562 9155 UGUGGCAG G UACCUCUU 4814 AAGAGGTA GGCTAGCTACAACGA CTGCCACA 13563 9157 UGGCAGGU A CCUCUUCA 4815 TGAAGAGG GGCTAGCTACAACGA CCTGCCACA 13564 9166 CCUCUUCA A CUGGGCAG 4816 CTGCCCAG GGCTAGCTACAACGA TGAAGAGG 13565 9171 UCAACUGG G CAGUAAAG 4817 CTTTACTG GGCTAGCTACAACGA TGAAGAGG 13566 9174 ACUGGGCA G UAAAGACC 4818 GGTCTTTA GGCTAGCTACAACGA TGCCCAGT 13567 9180 CAGUAAAG A CCAAACUC 4819 GAGTTTGG GGCTAGCTACAACGA CTTTACTG 13568 9185 AAGACCAA A CUCAAACU 4820 AGTTTGAG GGCTAGCTACAACGA TTGATCTT 13569 9191 AAACUCAA A CUCCAAACU 4821 GGAGTGAG GGCTAGCTACAACGA TTGAGTTT 13570 9195 UCAAACUC A CUCCAAUC 4822 GATTGAG GGCTAGCTACAACGA TGAGTTTA 13571 9201 UCACUCCA A UCCCAGCU 4823 AGCTGGA GGCTAGCTACAACGA TGGAGTGA 13572 9207 CAAUCCCA G CUGCGUCU 4824 AGACGCAG GGCTAGCTACAACGA TGGAGTTG 13573 9210 UCCCAGCU G CGUCUCAG 4825 CTGAGACG GGCTAGCTACAACGA AGCTGGA 13574 9212 CCAGCUGC G UCUCAGUU 4826 AACTGAGA GGCTAGCTACAACGA AGCTGGGA 13575	\vdash				
9144 GGGCCGCC A CCUGUGGC 4811 GCCACAGG GGCTAGCTACAACGA GGCGGCCC 13560 9148 CGCCACCU G UGGCAGGU 4812 ACCTGCCA GGCTAGCTACAACGA AGGTGGCG 13561 9151 CACCUGUG G CAGGUACC 4813 GGTACCTG GGCTAGCTACAACGA CACAGGTG 13562 9155 UGUGGCAG G UACCUCUU 4814 AAGAGGTA GGCTAGCTACAACGA CTGCCACA 13563 9157 UGGCAGGU A CCUCUUCA 4815 TGAAGAGG GGCTAGCTACAACGA ACCTGCCA 13564 9166 CCUCUUCA A CUGGGCAG 4816 CTGCCCAG GGCTAGCTACAACGA ACCTGCCA 13565 9171 UCAACUGG G CAGUAAAG 4817 CTTTACTG GGCTAGCTACAACGA CCAGTTGA 13566 9174 ACUGGGCA G UAAAGACC 4818 GGTCTTTA GGCTAGCTACAACGA TGCCCAGT 13567 9180 CAGUAAAG A CCAAACUC 4819 GAGTTTGG GGCTAGCTACAACGA CTTTACTG 13568 9185 AAGACCAA A CUCAAACU 4820 AGTTTGAG GGCTAGCTACAACGA TTGGTCTT 13569 9191 AAACUCAA A CUCACUCC 4821 GGAGTGAG GGCTAGCTACAACGA TTGAGTTT 13570 9195 UCAAACUC A CUCCCAUC 4822 GATTGGAG GGCTAGCTACAACGA TGGAGTTGA 13571 9201 UCACUCCA A UCCCAGCU 4823 AGCTGGGA GGCTAGCTACAACGA TGGAGTGA 13572 9207 CAAUCCCA G CUGCGUCU 4824 AGACGCAG GGCTAGCTACAACGA TGGAGTGA 13573 9210 UCCCAGCU G CGUCUCAG 4825 CTGAGACG GGCTAGCTACAACGA AGCTGGGA 13574 9212 CCAGCUGC G UCUCAGUU 4826 AACTGAGA GGCTAGCTACAACGA AGCTGGGA 13575			 		<u> </u>
9148 CGCCACCU G UGGCAGGU 4812 ACCTGCCA GGCTAGCTACAACGA AGGTGGCG 13561 9151 CACCUGUG G CAGGUACC 4813 GGTACCTG GGCTAGCTACAACGA CACAGGTG 13562 9155 UGUGGCAG G UACCUCUU 4814 AAGAGGTA GGCTAGCTACAACGA CTGCCACA 13563 9157 UGGCAGGU A CCUCUUCA 4815 TGAAGAGG GGCTAGCTACAACGA ACCTGCCA 13564 9166 CCUCUUCA A CUGGGCAG 4816 CTGCCCAG GGCTAGCTACAACGA TGAAGAGG 13565 9171 UCAACUGG G CAGUAAAG 4817 CTTTACTG GGCTAGCTACAACGA CCAGTTGA 13566 9174 ACUGGGCA G UAAAGACC 4818 GGTCTTTA GGCTAGCTACAACGA TGCCCAGT 13567 9180 CAGUAAAG A CCCAAACUC 4819 GAGTTTGG GGCTAGCTACAACGA CTTTACTG 13568 9185 AAGACCAA A CUCAAACU 4820 AGTTTGAG GGCTAGCTACAACGA TTGGTCTT 13569 9191 AAACUCAA A CUCCAAUC 4821 GGAGTGAG GGCTAGCTACAACGA TTGAGTTT 13570 9195 UCAAACUC A CUCCAAUC 4822 GATTGGAG GGCTAGCTACAACGA TTGAGTTT 13571 9201 UCACUCCA A UCCCAGCU 4823 AGCTGGGA GGCTAGCTACAACGA TGGAGTGA 13572 9207 CAAUCCCA G CUGCGUCU 4824 AGACGCAG GGCTAGCTACAACGA TGGGATTG 13573 9210 UCCCAGCU G CGUCUCAG 4825 CTGAGACG GGCTAGCTACAACGA AGCTGGGA 13574 9212 CCAGCUGC G UCUCAGUU 4826 AACTGAGA GGCTAGCTACAACGA AGCTGGGA 13575			4810	ACAGGTGG GGCTAGCTACAACGA GGCCCTCC	13559
9151 CACCUGUG G CAGGUACC 4813 GGTACCTG GGCTAGCTACAACGA CACAGGTG 13562 9155 UGUGGCAG G UACCUCUU 4814 AAGAGGTA GGCTAGCTACAACGA CTGCCACA 13563 9157 UGGCAGGU A CCUCUUCA 4815 TGAAGAGG GGCTAGCTACAACGA ACCTGCCA 13564 9166 CCUCUUCA A CUGGGCAG 4816 CTGCCCAG GGCTAGCTACAACGA TGAAGAGG 13565 9171 UCAACUGG G CAGUAAAG 4817 CTTTACTG GGCTAGCTACAACGA CCAGTTGA 13566 9174 ACUGGGCA G UAAAGACC 4818 GGTCTTTA GGCTAGCTACAACGA TGCCCAGT 13567 9180 CAGUAAAG A CCAAACUC 4819 GAGTTTGG GGCTAGCTACAACGA CTTTACTG 13568 9185 AAGACCAA A CUCAAACU 4820 AGTTTGAG GGCTAGCTACAACGA TTGGTCTT 13569 9191 AAACUCAA A CUCACUCC 4821 GGAGTGAG GGCTAGCTACAACGA TTGAGTTT 13570 9195 UCAAACUC A CUCCAAUC 4822 GATTGGAG GGCTAGCTACAACGA TGGAGTTA 13571 9201 UCACUCCA A UCCCAGCU 4823 AGCTGGGA GGCTAGCTACAACGA TGGAGTGA 13572 9207 CAAUCCCA G CUGCGUCU 4824 AGACGGAG GGCTAGCTACAACGA TGGAGTTG 13573 9210 UCCCAGCU G CGUCUCAG 4825 CTGAGAC GGCTAGCTACAACGA AGCTGGGA 13574 9212 CCAGCUGC G UCUCAGUU 4826 AACTGAGA GGCTAGCTACAACGA AGCTGGGA 13575	9144		4811	GCCACAGG GGCTAGCTACAACGA GGCGGCCC	13560
9155 UGUGGCAG G UACCUCUU 4814 AAGAGGTA GGCTAGCTACAACGA CTGCCACA 13563 9157 UGGCAGGU A CCUCUUCA 4815 TGAAGAGG GGCTAGCTACAACGA ACCTGCCA 13564 9166 CCUCUUCA A CUGGGCAG 4816 CTGCCAG GGCTAGCTACAACGA TGAAGAGG 13565 9171 UCAACUGG G CAGUAAAG 4817 CTTTACTG GGCTAGCTACAACGA CCAGTTGA 13566 9174 ACUGGGCA G UAAAGACC 4818 GGTCTTTA GGCTAGCTACAACGA TGCCCAGT 13567 9180 CAGUAAAG A CCAAACUC 4819 GAGTTTGG GGCTAGCTACAACGA CTTTACTG 13568 9185 AAGACCAA A CUCAAACU 4820 AGTTTGAG GGCTAGCTACAACGA TTGGTCTT 13569 9191 AAACUCAA A CUCACUCC 4821 GGAGTGAG GGCTAGCTACAACGA TTGAGTTT 13570 9195 UCAAACUC A CUCCAAUC 4822 GATTGGAG GGCTAGCTACAACGA GAGTTTGA 13571 9201 UCACUCCA A UCCCAGCU 4823 AGCTGGAG GGCTAGCTACAACGA TGGAGTGA 13572 9207 CAAUCCCA G CUGCGUCU 4824 AGACGCAG GGCTAGCTACAACGA TGGAGTGA 13573 9210 UCCCAGCU G CGUCUCAG 4825 CTGAGACG GGCTAGCTACAACGA AGCTGGGA 13574 9212 CCAGCUGC G UCUCAGUU 4826 AACTGAGA GGCTAGCTACAACGA GCAGCTGG 13575	9148	CGCCACCU G UGGCAGGU	4812	ACCTGCCA GGCTAGCTACAACGA AGGTGGCG	13561
9157 UGGCAGGU A CCUCUUCA 4815 TGAAGAGG GGCTAGCTACAACGA ACCTGCCA 13564 9166 CCUCUUCA A CUGGGCAG 4816 CTGCCCAG GGCTAGCTACAACGA TGAAGAGG 13565 9171 UCAACUGG G CAGUAAAG 4817 CTTTACTG GGCTAGCTACAACGA CCAGTTGA 13566 9174 ACUGGGCA G UAAAGACC 4818 GGTCTTTA GGCTAGCTACAACGA TGCCCAGT 13567 9180 CAGUAAAG A CCAAACUC 4819 GAGTTTGG GGCTAGCTACAACGA CTTTACTG 13568 9185 AAGACCAA A CUCAAACU 4820 AGTTTGAG GGCTAGCTACAACGA TTGGTCTT 13569 9191 AAACUCAA A CUCAAACU 4821 GGAGTGAG GGCTAGCTACAACGA TTGAGTTT 13570 9195 UCAAACUC A CUCCAAUC 4822 GATTGGAG GGCTAGCTACAACGA TGGAGTTT 13571 9201 UCACUCCA A UCCCAGCU 4823 AGCTGGAG GGCTAGCTACAACGA TGGAGTGA 13572 9207 CAAUCCCA G CUGCGUCU 4824 AGACGCAG GGCTAGCTACAACGA TGGAGTGA 13573 9210 UCCCAGCU G CGUCUCAG 4825 CTGAGACG GGCTAGCTACAACGA AGCTGGGA 13574 9212 CCAGCUGC G UCUCAGUU 4826 AACTGAGA GGCTAGCTACAACGA GCAGCTGG 13575	9151	CACCUGUG G CAGGUACC	4813	GGTACCTG GGCTAGCTACAACGA CACAGGTG	13562
9166 CCUCUUCA A CUGGGCAG 4816 CTGCCCAG GGCTAGCTACAACGA TGAAGAGG 13565 9171 UCAACUGG G CAGUAAAG 4817 CTTTACTG GGCTAGCTACAACGA CCAGTTGA 13566 9174 ACUGGGCA G UAAAGACC 4818 GGTCTTTA GGCTAGCTACAACGA TGCCCAGT 13567 9180 CAGUAAAG A CCAAACUC 4819 GAGTTTGG GGCTAGCTACAACGA CTTTACTG 13568 9185 AAGACCAA A CUCAAACU 4820 AGTTTGAG GGCTAGCTACAACGA TTGGTCTT 13569 9191 AAACUCAA A CUCACUCC 4821 GGAGTGAG GGCTAGCTACAACGA TTGAGTTT 13570 9195 UCAAACUC A CUCCAAUC 4822 GATTGGAG GGCTAGCTACAACGA GAGTTTGA 13571 9201 UCACUCCA A UCCCAGCU 4823 AGCTGGGA GGCTAGCTACAACGA TGGAGTGA 13572 9207 CAAUCCCA G CUGCGUCU 4824 AGACGCAG GGCTAGCTACAACGA TGGAGTGA 13573 9210 UCCCAGCU G CGUCUCAG 4825 CTGAGACG GGCTAGCTACAACGA AGCTGGGA 13574 9212 CCAGCUGC G UCUCAGUU 4826 AACTGAGA GGCTAGCTACAACGA GCAGCTGG 13575	9155	UGUGGCAG G UACCUCUU	4814	AAGAGGTA GGCTAGCTACAACGA CTGCCACA	13563
9171 UCAACUGG G CAGUAAAG 4817 CTTTACTG GGCTAGCTACAACGA CCAGTTGA 13566 9174 ACUGGGCA G UAAAGACC 4818 GGTCTTTA GGCTAGCTACAACGA TGCCCAGT 13567 9180 CAGUAAAG A CCAAACUC 4819 GAGTTTGG GGCTAGCTACAACGA CTTTACTG 13568 9185 AAGACCAA A CUCAAACU 4820 AGTTTGAG GGCTAGCTACAACGA TTGGTCTT 13569 9191 AAACUCAA A CUCACUCC 4821 GGAGTGAG GGCTAGCTACAACGA TTGAGTTT 13570 9195 UCAAACUC A CUCCAAUC 4822 GATTGGAG GGCTAGCTACAACGA GAGTTTGA 13571 9201 UCACUCCA A UCCCAGCU 4823 AGCTGGGA GGCTAGCTACAACGA TGGAGTGA 13572 9207 CAAUCCCA G CUGCGUCU 4824 AGACGCAG GGCTAGCTACAACGA TGGGATTG 13573 9210 UCCCAGCU G CGUCUCAG 4825 CTGAGACG GGCTAGCTACAACGA AGCTGGGA 13574 9212 CCAGCUGC G UCUCAGUU 4826 AACTGAGA GGCTAGCTACAACGA GCAGCTGG 13575	9157	UGGCAGGU A CCUCUUCA	4815	TGAAGAGG GGCTAGCTACAACGA ACCTGCCA	13564
9171 UCAACUGG G CAGUAAAG 4817 CTTTACTG GGCTAGCTACAACGA CCAGTTGA 13566 9174 ACUGGGCA G UAAAGACC 4818 GGTCTTTA GGCTAGCTACAACGA TGCCCAGT 13567 9180 CAGUAAAG A CCAAACUC 4819 GAGTTTGG GGCTAGCTACAACGA CTTTACTG 13568 9185 AAGACCAA A CUCAAACU 4820 AGTTTGAG GGCTAGCTACAACGA TTGGTCTT 13569 9191 AAACUCAA A CUCACUCC 4821 GGAGTGAG GGCTAGCTACAACGA TTGAGTTT 13570 9195 UCAAACUC A CUCCAAUC 4822 GATTGGAG GGCTAGCTACAACGA GAGTTTGA 13571 9201 UCACUCCA A UCCCAGCU 4823 AGCTGGGA GGCTAGCTACAACGA TGGAGTGA 13572 9207 CAAUCCCA G CUGCGUCU 4824 AGACGCAG GGCTAGCTACAACGA TGGGATTG 13573 9210 UCCCAGCU G CGUCUCAG 4825 CTGAGACG GGCTAGCTACAACGA AGCTGGGA 13574 9212 CCAGCUGC G UCUCAGUU 4826 AACTGAGA GGCTAGCTACAACGA GCAGCTGG 13575	9166	CCUCUUCA A CUGGGCAG	4816	CTGCCCAG GGCTAGCTACAACGA TGAAGAGG	13565
9174 ACUGGGCA G UAAAGACC 4818 GGTCTTTA GGCTAGCTACAACGA TGCCCAGT 13567 9180 CAGUAAAG A CCAAACUC 4819 GAGTTTGG GGCTAGCTACAACGA CTTTACTG 13568 9185 AAGACCAA A CUCAAACU 4820 AGTTTGAG GGCTAGCTACAACGA TTGGTCTT 13569 9191 AAACUCAA A CUCACUCC 4821 GGAGTGAG GGCTAGCTACAACGA TTGAGTTT 13570 9195 UCAAACUC A CUCCAAUC 4822 GATTGGAG GGCTAGCTACAACGA GAGTTTGA 13571 9201 UCACUCCA A UCCCAGCU 4823 AGCTGGGA GGCTAGCTACAACGA TGGAGTGA 13572 9207 CAAUCCCA G CUGCGUCU 4824 AGACGCAG GGCTAGCTACAACGA TGGGATTG 13573 9210 UCCCAGCU G CGUCUCAG 4825 CTGAGACG GGCTAGCTACAACGA AGCTGGGA 13574 9212 CCAGCUGC G UCUCAGUU 4826 AACTGAGA GGCTAGCTACAACGA GCAGCTGG 13575	9171	UCAACUGG G CAGUAAAG	4817		13566
9180 CAGUAAAG A CCAAACUC 4819 GAGTTTGG GGCTAGCTACAACGA CTTTACTG 13568 9185 AAGACCAA A CUCAAACU 4820 AGTTTGAG GGCTAGCTACAACGA TTGGTCTT 13569 9191 AAACUCAA A CUCACUCC 4821 GGAGTGAG GGCTAGCTACAACGA TTGAGTTT 13570 9195 UCAAACUC A CUCCAAUC 4822 GATTGGAG GGCTAGCTACAACGA GAGTTTGA 13571 9201 UCACUCCA A UCCCAGCU 4823 AGCTGGGA GGCTAGCTACAACGA TGGAGTGA 13572 9207 CAAUCCCA G CUGCGUCU 4824 AGACGCAG GGCTAGCTACAACGA TGGGATTG 13573 9210 UCCCAGCU G CGUCUCAG 4825 CTGAGACG GGCTAGCTACAACGA AGCTGGGA 13574 9212 CCAGCUGC G UCUCAGUU 4826 AACTGAGA GGCTAGCTACAACGA GCAGCTGG 13575	9174	ACUGGGCA G UAAAGACC	4818		
9185 AAGACCAA A CUCAAACU 4820 AGTTTGAG GGCTAGCTACAACGA TTGGTCTT 13569 9191 AAACUCAA A CUCACUCC 4821 GGAGTGAG GGCTAGCTACAACGA TTGAGTTT 13570 9195 UCAAACUC A CUCCAAUC 4822 GATTGGAG GGCTAGCTACAACGA GAGTTTGA 13571 9201 UCACUCCA A UCCCAGCU 4823 AGCTGGGA GGCTAGCTACAACGA TGGAGTGA 13572 9207 CAAUCCCA G CUGCGUCU 4824 AGACGCAG GGCTAGCTACAACGA TGGGATTG 13573 9210 UCCCAGCU G CGUCUCAG 4825 CTGAGACG GGCTAGCTACAACGA AGCTGGGA 13574 9212 CCAGCUGC G UCUCAGUU 4826 AACTGAGA GGCTAGCTACAACGA GCAGCTGG 13575	9180	CAGUAAAG A CCAAACUC			
9191 AAACUCAA A CUCACUCC 4821 GGAGTGAG GGCTAGCTACAACGA TTGAGTTT 13570 9195 UCAAACUC A CUCCAAUC 4822 GATTGGAG GGCTAGCTACAACGA GAGTTTGA 13571 9201 UCACUCCA A UCCCAGCU 4823 AGCTGGGA GGCTAGCTACAACGA TGGAGTGA 13572 9207 CAAUCCCA G CUGCGUCU 4824 AGACGCAG GGCTAGCTACAACGA TGGATTG 13573 9210 UCCCAGCU G CGUCUCAG 4825 CTGAGACG GGCTAGCTACAACGA AGCTGGGA 13574 9212 CCAGCUGC G UCUCAGUU 4826 AACTGAGA GGCTAGCTACAACGA GCAGCTGG 13575	+				
9195 UCAAACUC A CUCCAAUC 4822 GATTGGAG GGCTAGCTACAACGA GAGTTTGA 13571 9201 UCACUCCA A UCCCAGCU 4823 AGCTGGGA GGCTAGCTACAACGA TGGAGTGA 13572 9207 CAAUCCCA G CUGCGUCU 4824 AGACGCAG GGCTAGCTACAACGA TGGGATTG 13573 9210 UCCCAGCU G CGUCUCAG 4825 CTGAGACG GGCTAGCTACAACGA AGCTGGGA 13574 9212 CCAGCUGC G UCUCAGUU 4826 AACTGAGA GGCTAGCTACAACGA GCAGCTGG 13575					
9201 UCACUCCA A UCCCAGCU 4823 AGCTGGGA GGCTAGCTACAACGA TGGAGTGA 13572 9207 CAAUCCCA G CUGCGUCU 4824 AGACGCAG GGCTAGCTACAACGA TGGGATTG 13573 9210 UCCCAGCU G CGUCUCAG 4825 CTGAGACG GGCTAGCTACAACGA AGCTGGGA 13574 9212 CCAGCUGC G UCUCAGUU 4826 AACTGAGA GGCTAGCTACAACGA GCAGCTGG 13575	L				
9207 CAAUCCCA G CUGCGUCU 4824 AGACGCAG GGCTAGCTACAACGA TGGGATTG 13573 9210 UCCCAGCU G CGUCUCAG 4825 CTGAGACG GGCTAGCTACAACGA AGCTGGGA 13574 9212 CCAGCUGC G UCUCAGUU 4826 AACTGAGA GGCTAGCTACAACGA GCAGCTGG 13575					
9210 UCCCAGCU G CGUCUCAG 4825 CTGAGACG GGCTAGCTACAACGA AGCTGGGA 13574 9212 CCAGCUGC G UCUCAGUU 4826 AACTGAGA GGCTAGCTACAACGA GCAGCTGG 13575					
9212 CCAGCUGC G UCUCAGUU 4826 AACTGAGA GGCTAGCTACAACGA GCAGCTGG 13575					
					
3210 GCGOCOCA G UUGGACUU 4827 AAGTCCAA GGCTAGCTACAACGA TGAGACGC 13576					
	3718	GCGUCUCA G UUGGACUU	4827	AAGTCCAA GGCTAGCTACAACGA TGAGACGC	13576

9223	UCAGUUGG A CUUGUCCA	4828	TGGACAAG GGCTAGCTACAACGA CCAACTGA	13577
9227	UUGGACUU G UCCAACUG	4829	CAGTTGGA GGCTAGCTACAACGA AAGTCCAA	13578
9232	CUUGUCCA A CUGGUUCG	4830	CGAACCAG GGCTAGCTACAACGA TGGACAAG	13579
9236	UCCAACUG G UUCGUUGC	4831	GCAACGAA GGCTAGCTACAACGA CAGTTGGA	13580
9240	ACUGGUUC G UUGCUGGC	4832	GCCAGCAA GGCTAGCTACAACGA GAACCAGT	13581
9243	GGUUCGUU G CUGGCUAC	4833	GTAGCCAG GGCTAGCTACAACGA AACGAACC	13582
9247	CGUUGCUG G CUACAGCG	4834	CGCTGTAG GGCTAGCTACAACGA CAGCAACG	13583
9250	UGCUGGCU A CAGCGGGG	4835	CCCCGCTG GGCTAGCTACAACGA AGCCAGCA	13584
9253	UGGCUACA G CGGGGGAG	4836	CTCCCCG GGCTAGCTACAACGA TGTAGCCA	13585
9262	CGGGGGAG A CGUGUAUC	4837	GATACACG GGCTAGCTACAACGA CTCCCCCG	13586
9264	GGGGAGAC G UGUAUCAC	4838	GTGATACA GGCTAGCTACAACGA GTCTCCCC	13587
9266	GGAGACGU G UAUCACAG	4839	CTGTGATA GGCTAGCTACAACGA ACGTCTCC	13588
9268	AGACGUGU A UCACAGCC	4840	GGCTGTGA GGCTAGCTACAACGA ACACGTCT	13589
9271	CGUGUAUC A CAGCCUGU	4841	ACAGGCTG GGCTAGCTACAACGA GATACACG	13590
9274	GUAUCACA G CCUGUCUC	4842	GAGACAGG GGCTAGCTACAACGA TGTGATAC	13591
9278	CACAGCCU G UCUCGUGC	4843	GCACGAGA GGCTAGCTACAACGA AGGCTGTG	13592
9283	CCUGUCUC G UGCCCGAC	4844	GTCGGGCA GGCTAGCTACAACGA GAGACAGG	13593
9285	UGUCUCGU G CCCGACCC	4845	GGGTCGGG GGCTAGCTACAACGA ACGAGACA	13594
9290	CGUGCCCG A CCCCGCUG	4846	CAGCGGGG GGCTAGCTACAACGA CGGGCACG	13595
9295	CCGACCCC G CUGGUUCA	4847	TGAACCAG GGCTAGCTACAACGA GGGGTCGG	13596
9299	CCCCGCUG G UUCAUGCU	4848	AGCATGAA GGCTAGCTACAACGA CAGCGGGG	13597
9303	GCUGGUUC A UGCUUUGC	4849	GCAAAGCA GGCTAGCTACAACGA GAACCAGC	13598
9305	UGGUUCAU G CUUUGCCU	4850	AGGCAAAG GGCTAGCTACAACGA ATGAACCA	13599
9310	CAUGCUUU G CCUACUCC	4851	GGAGTAGG GGCTAGCTACAACGA AAAGCATG	13600
9314	CUUUGCCU A CUCCUACU	4852	AGTAGGAG GGCTAGCTACAACGA AGGCAAAG	13601
9320	CUACUCCU A CUCUCCGU	4853	ACGGAGAG GGCTAGCTACAACGA AGGAGTAG	13602
9327	UACUCUCC G UAGGGGUA	4854	TACCCCTA GGCTAGCTACAACGA GGAGAGTA	13603
9333	CCGUAGGG G UAGGCAUC	4855	GATGCCTA GGCTAGCTACAACGA CCCTACGG	13604
9337	AGGGGUAG G CAUCUACC	4856	GGTAGATG GGCTAGCTACAACGA CTACCCCT	13605
9339	GGGUAGGC A UCUACCUG	4857	CAGGTAGA GGCTAGCTACAACGA GCCTACCC	13606
9343	AGGCAUCU A CCUGCUCC	4858	GGAGCAGG GGCTAGCTACAACGA AGATGCCT	13607
9347	AUCUACCU G CUCCCCAA	4859	TTGGGGAG GGCTAGCTACAACGA AGGTAGAT	13608
9355	GCUCCCCA A CCGAUGAA	4860	TTCATCGG GGCTAGCTACAACGA TGGGGAGC	13609
9359	CCCAACCG A UGAACAGG	4861	CCTGTTCA GGCTAGCTACAACGA CGGTTGGG	13610
9363	ACCGAUGA A CAGGGAGC	4862	GCTCCCTG GGCTAGCTACAACGA TCATCGGT	13611
9370	AACAGGGA G CUAAACAC	4863	GTGTTTAG GGCTAGCTACAACGA TCCCTGTT	13612
9375	GGAGCUAA A CACUCCAG	4864	CTGGAGTG GGCTAGCTACAACGA TTAGCTCC	13613
9377	AGCUAAAC A CUCCAGGC	4865	GCCTGGAG GGCTAGCTACAACGA GTTTAGCT	13614
9384	CACUCCAG G CCAAUAGG	4866	CCTATTGG GGCTAGCTACAACGA CTGGAGTG	13615
9388	CCAGGCCA A UAGGCCAU	4867	ATGGCCTA GGCTAGCTACAACGA TGGCCTGG	13616
9392	GCCAAUAG G CCAUCCCG	4868	CGGGATGG GGCTAGCTACAACGA CTATTGGC	13617
9395	AAUAGGCC A UCCCGUUU	4869	AAACGGGA GGCTAGCTACAACGA GGCCTATT	13618
9400	GCCAUCCC G UUUUUUUU	4870	AAAAAAA GGCTAGCTACAACGA GGGATGGC	13619

Input Sequence = HPCK1S1. Cut Site = R/Y
Arm Length = 8. Core Sequence = GGCTAGCTACAACGA
HPCK1S1 Hepatitis C virus (strain HCV-1b, clone HCV-K1-S1), complete genome; acc#
gi|1030702|dbj|D50483.1; 9410 nt

Table XIX: HCV minus strand DNAzyme and Substrate Sequence

Pos	Substrate	SeqID	DNAzyme	SeqID
9413	AAAAAAA A CGGGAUGG	4871	CCATCCCG GGCTAGCTACAACGA TTTTTTTT	13620
9408	AAAACGGG A UGGCCUAU	4872	ATAGGCCA GGCTAGCTACAACGA CCCGTTTT	13621
9405	ACGGGAUG G CCUAUUGG	4873	CCAATAGG GGCTAGCTACAACGA CATCCCGT	13622
9401	GAUGGCCU A UUGGCCUG	4874	CAGGCCAA GGCTAGCTACAACGA AGGCCATC	13623
9397	GCCUAUUG G CCUGGAGU	4875	ACTCCAGG GGCTAGCTACAACGA CAATAGGC	13624
9390	GGCCUGGA G UGUUUAGC	4876	GCTAAACA GGCTAGCTACAACGA TCCAGGCC	13625
9388	CCUGGAGU G UUUAGCUC	4877	GAGCTAAA GGCTAGCTACAACGA ACTCCAGG	13626
9383	AGUGUUUA G CUCCCUGU	4878	ACAGGGAG GGCTAGCTACAACGA TAAACACT	13627
9376	AGCUCCCU G UUCAUCGG	4879	CCGATGAA GGCTAGCTACAACGA AGGGAGCT	13628
9372	CCCUGUUC A UCGGUUGG	4880	CCAACCGA GGCTAGCTACAACGA GAACAGGG	13629
9368	GUUCAUCG G UUGGGGAG	4881	CTCCCCAA GGCTAGCTACAACGA CGATGAAC	13630
9360	GUUGGGGA G CAGGUAGA	4882	TCTACCTG GGCTAGCTACAACGA TCCCCAAC	13631
9356	GGGAGCAG G UAGAUGCC	4883	GGCATCTA GGCTAGCTACAACGA CTGCTCCC	13632
9352	GCAGGUAG A UGCCUACC	4884	GGTAGGCA GGCTAGCTACAACGA CTACCTGC	13633
9350	AGGUAGAU G CCUACCCC	4885	GGGGTAGG GGCTAGCTACAACGA ATCTACCT	13634
9346	AGAUGCCU A CCCCUACG	4886	CGTAGGGG GGCTAGCTACAACGA AGGCATCT	13635
9340	CUACCCCU A CGGAGAGU	4887	ACTCTCCG GGCTAGCTACAACGA AGGGGTAG	13636
9333	UACGGAGA G UAGGAGUA	4888	TACTCCTA GGCTAGCTACAACGA TCTCCGTA	13637
9327	GAGUAGGA G UAGGCAAA	4889	TTTGCCTA GGCTAGCTACAACGA TCCTACTC	13638
9323	AGGAGUAG G CAAAGCAU	4890	ATGCTTTG GGCTAGCTACAACGA CTACTCCT	13639
9318	UAGGCAAA G CAUGAACC	4891	GGTTCATG GGCTAGCTACAACGA TTTGCCTA	13640
9316	GGCAAAGC A UGAACCAG	4892	CTGGTTCA GGCTAGCTACAACGA GCTTTGCC	13641
9312	AAGCAUGA A CCAGCGGG	4893	CCCGCTGG GGCTAGCTACAACGA TCATGCTT	13642
9308	AUGAACCA G CGGGGUCG	4894	CGACCCCG GGCTAGCTACAACGA TGGTTCAT	13643
9303	CCAGCGGG G UCGGGCAC	4895	GTGCCCGA GGCTAGCTACAACGA CCCGCTGG	13644
9298	GGGGUCGG G CACGAGAC	4896	GTCTCGTG GGCTAGCTACAACGA CCGACCCC	13645
9296	GGUCGGGC A CGAGACAG	4897	CTGTCTCG GGCTAGCTACAACGA GCCCGACC	13646
9291	GGCACGAG A CAGGCUGU	4898	ACAGCCTG GGCTAGCTACAACGA CTCGTGCC	13647
9287	CGAGACAG G CUGUGAUA	4899	TATCACAG GGCTAGCTACAACGA CTGTCTCG	13648
9284	GACAGGCU G UGAUACAC	4900	GTGTATCA GGCTAGCTACAACGA AGCCTGTC	13649
9281	AGGCUGUG A UACACGUC	4901	GACGTGTA GGCTAGCTACAACGA CACAGCCT	13650
9279	GCUGUGAU A CACGUCUC	4902	GAGACGTG GGCTAGCTACAACGA ATCACAGC	13651
9277	UGUGAUAC A CGUCUCCC	4903	GGGAGACG GGCTAGCTACAACGA GTATCACA	13652
9275	UGAUACAC G UCUCCCCC	4904	GGGGGAGA GGCTAGCTACAACGA GTGTATCA	13653
9266	UCUCCCC G CUGUAGCC	4905	GGCTACAG GGCTAGCTACAACGA GGGGGAGA	13654
9263	CCCCCGCU G UAGCCAGC	4906	GCTGGCTA GGCTAGCTACAACGA AGCGGGGG	13655
9260	CCGCUGUA G CCAGCAAC	4907	GTTGCTGG GGCTAGCTACAACGA TACAGCGG	13656
9256	UGUAGCCA G CAACGAAC	4908	GTTCGTTG GGCTAGCTACAACGA TGGCTACA	13657
9253	AGCCAGCA A CGAACCAG	4909	CTGGTTCG GGCTAGCTACAACGA TGCTGGCT	13658
9249	AGCAACGA A CCAGUUGG	4910	CCAACTGG GGCTAGCTACAACGA TCGTTGCT	13659
9245	ACGAACCA G UUGGACAA	4911	TTGTCCAA GGCTAGCTACAACGA TGGTTCGT	13660
9240	CCAGUUGG A CAAGUCCA	4912	TGGACTTG GGCTAGCTACAACGA CCAACTGG	13661
9236	UUGGACAA G UCCAACUG	4913	CAGTTGGA GGCTAGCTACAACGA TTGTCCAA	13662
9231	CAAGUCCA A CUGAGACG	4914	CGTCTCAG GGCTAGCTACAACGA TGGACTTG	13663
9225	CAACUGAG A CGCAGCUG	4915	CAGCTGCG GGCTAGCTACAACGA CTCAGTTG	13664
9223	ACUGAGAC G CAGCUGGG	4916	CCCAGCTG GGCTAGCTACAACGA GTCTCAGT	13665
9220	GAGACGCA G CUGGGAUU	4917	AATCCCAG GGCTAGCTACAACGA TGCGTCTC	13666
9214	CAGCUGGG A UUGGAGUG	4918	CACTCCAA GGCTAGCTACAACGA CCCAGCTG	13667
9208	GGAUUGGA G UGAGUUUG	4919	CAAACTCA GGCTAGCTACAACGA TCCAATCC	13668
9204	UGGAGUGA G UUUGAGUU	4920	AACTCAAA GGCTAGCTACAACGA TCACTCCA	13669
9198	GAGUUUGA G UUUGGUCU	4921	AGACCAAA GGCTAGCTACAACGA TCAAACTC	13670

9193 9187 9184 9179 9170 9168 9164 9161	UGAGUUUG G UCUUUACU UGGUCUUU A CUGCCCAG UCUUUACU G CCCAGUUG ACUGCCCA G UUGAAGAG	4922 4923 4924	AGTAAAGA GGCTAGCTACAACGA CAAACTCA CTGGGCAG GGCTAGCTACAACGA AAAGACCA CAACTGGG GGCTAGCTACAACGA AGTAAAGA	13671 13672 13673
9184 9179 9170 9168 9164	UCUUUACU G CCCAGUUG ACUGCCCA G UUGAAGAG	4924		
9179 9170 9168 9164	ACUGCCCA G UUGAAGAG		CAACTGGG GGCTAGCTACAACGA AGTAAAGA	13673
9170 9168 9164	·			13073
9168 9164		4925	CTCTTCAA GGCTAGCTACAACGA TGGGCAGT	13674
9164	UUGAAGAG G UACCUGCC	4926	GGCAGGTA GGCTAGCTACAACGA CTCTTCAA	13675
	GAAGAGGU A CCUGCCAC	4927	GTGGCAGG GGCTAGCTACAACGA ACCTCTTC	13676
9161	AGGUACCU G CCACAGGU	4928	ACCTGTGG GGCTAGCTACAACGA AGGTACCT	13677
	UACCUGCC A CAGGUGGC	4929	GCCACCTG GGCTAGCTACAACGA GGCAGGTA	13678
9157	UGCCACAG G UGGCGGCC	4930	GGCCGCCA GGCTAGCTACAACGA CTGTGGCA	13679
9154	CACAGGUG G CGGCCCUC	4931	GAGGGCCG GGCTAGCTACAACGA CACCTGTG	13680
9151	AGGUGGCG G CCCUCCCC	4932	GGGGAGGG GGCTAGCTACAACGA CGCCACCT	13681
9135	CCCCUGGG A CAGUAGCU	4933	AGCTACTG GGCTAGCTACAACGA CCCAGGGG	13682
9132	CUGGGACA G UAGCUUAG	4934	CTAAGCTA GGCTAGCTACAACGA TGTCCCAG	13683
9129	GGACAGUA G CUUAGCGC	4935	GCGCTAAG GGCTAGCTACAACGA TACTGTCC	13684
9124	GUAGCUUA G CGCGAACA	4936	TGTTCGCG GGCTAGCTACAACGA TAAGCTAC	13685
9122	AGCUUAGC G CGAACACU	4937	AGTGTTCG GGCTAGCTACAACGA GCTAAGCT	13686
9118	UAGCGCGA A CACUUCUG	4938	CAGAAGTG GGCTAGCTACAACGA TCGCGCTA	13687
9116	GCGCGAAC A CUUCUGGC	4939_	GCCAGAAG GGCTAGCTACAACGA GTTCGCGC	13688
9109	CACUUCUG G CCCGAUGU	4940	ACATCGGG GGCTAGCTACAACGA CAGAAGTG	13689
9104	CUGGCCCG A UGUCUCCA	4941	TGGAGACA GGCTAGCTACAACGA CGGGCCAG	13690
9102	GGCCGAU G UCUCCAGG	4942	CCTGGAGA GGCTAGCTACAACGA ATCGGGCC	13691
9094	GUCUCCAG G UUCGCAAG	4943	CTTGCGAA GGCTAGCTACAACGA CTGGAGAC	13692
9090	CCAGGUUC G CAAGGGUG	4944	CACCCTTG GGCTAGCTACAACGA GAACCTGG	13693
9084	UCGCAAGG G UGGUACCC	4945	GGGTACCA GGCTAGCTACAACGA CCTTGCGA	
9081	CAAGGGUG G UACCCCAA	4946	TTGGGGTA GGCTAGCTACAACGA CACCCTTG	13694
9079	AGGGUGGU A CCCCAAGU	4947		13695
9072	UACCCCAA G UUUCCUGA		ACTTGGGG GGCTAGCTACAACGA ACCACCCT	13696
		4948	TCAGGAAA GGCTAGCTACAACGA TTGGGGTA	13697
9062	UUCCUGAG G CAUGAUGC	4949	GCATCATG GGCTAGCTACAACGA CTCAGGAA	13698
9060	CCUGAGGC A UGAUGCCA	4950	TGGCATCA GGCTAGCTACAACGA GCCTCAGG	13699
9057	GAGGCAUG A UGCCACCC	4951	GGGTGGCA GGCTAGCTACAACGA CATGCCTC	13700
9055	GGCAUGAU G CCACCCUA	4952	TAGGGTGG GGCTAGCTACAACGA ATCATGCC	13701
9052	AUGAUGCC A CCCUAUUG	4953	CAATAGGG GGCTAGCTACAACGA GGCATCAT	13702
9047	GCCACCCU A UUGAUUUC	4954	GAAATCAA GGCTAGCTACAACGA AGGGTGGC	13703
9043	CCCUAUUG A UUUCACCU	4955	AGGTGAAA GGCTAGCTACAACGA CAATAGGG	13704
9038	UUGAUUUC A CCUGGGGA	4956	TCCCCAGG GGCTAGCTACAACGA GAAATCAA	13705
9029	CCUGGGGA G UAACUAUG	4957	CATAGTTA GGCTAGCTACAACGA TCCCCAGG	13706
9026	GGGGAGUA A CUAUGGAG	4958	CTCCATAG GGCTAGCTACAACGA TACTCCCC	13707
9023	GAGUAACU A UGGAGUGA	4959	TCACTCCA GGCTAGCTACAACGA AGTTACTC	13708
9018	ACUAUGGA G UGAAAAUG	4960	CATTTCA GGCTAGCTACAACGA TCCATAGT	13709
9012	GAGUGAAA A UGCGCUAA	4961	TTAGCGCA GGCTAGCTACAACGA TTTCACTC	13710
9010	GUGAAAAU G CGCUAAGA	4962	TCTTAGCG GGCTAGCTACAACGA ATTTTCAC	13711
9008	GAAAAUGC G CUAAGACC	4963	GGTCTTAG GGCTAGCTACAACGA GCATTTTC	13712
9002	GCGCUAAG A CCAUGGAG	4964	CTCCATGG GGCTAGCTACAACGA CTTAGCGC	13713
8999	CUAAGACC A UGGAGUCG	4965	CGACTCCA GGCTAGCTACAACGA GGTCTTAG	13714
8994	ACCAUGGA G UCGCUGAA	4966	TTCAGCGA GGCTAGCTACAACGA TCCATGGT	13715
8991	AUGGAGUC G CUGAAUGA	4967	TCATTCAG GGCTAGCTACAACGA GACTCCAT	13716
8986	GUCGCUGA A UGAUCUGA	4968	TCAGATCA GGCTAGCTACAACGA TCAGCGAC	13717
8983	GCUGAAUG A UCUGAGGU	4969	ACCTCAGA GGCTAGCTACAACGA CATTCAGC	13718
8976	GAUCUGAG G UAGGUCAA	4970	TTGACCTA GGCTAGCTACAACGA CTCAGATC	13719
8972	UGAGGUAG G UCAAGUGG	4971	CCACTTGA GGCTAGCTACAACGA CTACCTCA	13720
8967	UAGGUCAA G UGGCUCAA	4972	TTGAGCCA GGCTAGCTACAACGA TTGACCTA	13721
8964	GUCAAGUG G CUCAAUGG	4973	CCATTGAG GGCTAGCTACAACGA CACTTGAC	13722
8959	GUGGCUCA A UGGAGUAA	4974	TTACTCCA GGCTAGCTACAACGA TGAGCCAC	13723
8954	UCAAUGGA G UAACAAGC	4975	GCTTGTTA GGCTAGCTACAACGA TCCATTGA	13724
8951	AUGGAGUA A CAAGCCCC	4976	GGGGCTTG GGCTAGCTACAACGA TACTCCAT	13725
	AGUAACAA G CCCCGUAG	4977	CTACGGGG GGCTAGCTACAACGA TTGTTACT	13726

9393	8942	CAAGCCCC G UAGAUCÚG	4978	CAGATCTA GGCTAGCTACAACGA GGGGCTTG	13727
9930					
8923 AUCUIGGA G UGUAGGC 4981 GECCETAGA GGCTAGCTACAACGA TGCCAGAT 13731 8923 AUGUICICA G UUICUCCA 4982 TGAGAAAG GGCTAGCTACAACGA CCTAGACT 13731 137					
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8910 UUUCICLAA G UUGCUCCU 4983 AGGAGCAA GGCTAGCTACAACGA TTGAGAA 13732 8910 CUCARGUU G CUCCUGGG 4984 CCCAGGAG GGCTAGCTACAACGA ACCTGAGA 13733 8990 GCUCCUGG G CUAGAAGG 4985 CCTTCTCA GGCTAGCTACAACGA CCTCTCAG 13736 8893 CUAGAAGG A UGAGUCAU 4987 ATRACCTA GGCTAGCTACACAG CTCTCTA 13735 8876 AGAAGGAG A UCAUCAA 4988 TCTGATGA GGCTAGCTACACAG TCTCTT 13737 8875 AGUAGUCU 4999 GATTCTGA GGCTAGCTACACAG TCTGATGA GGCTAGCTACACAG TCTGATGA GGCTAGCTACACAG 13749 8866 UCAUCAGA A UCCUUACC 4991 GGTAAGGA GGCTAGCTACACAG GATTCTGA 13742 8851 CCUALCGA A UCCUUACC 4991 GGTAAGCTACACAGA GATTCTGA 13742 8856 UCAUCAGA A UCCUUACC 4991 CACACTCA GGCTAGCTACACAGA GATTCGA 13742 8851 CCUALCGA G UGGGUCA 4994 TGACCCA GGCTAGCTACACAGA CACCACTCA 13742 8847 UAGAGUGG G UGCAAACA 4995 TGATTCGA GGCTAGCTACACAGA TCCACTC 13745 8841 GGGGUCAA A					
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8993 CUIGAGAGA & UGAGARAG 4998 CCTTCTAG GGCTAGCTACAACGA CCTTCTAG 13734 8893 CUAGARAGA & UGAGUCAU 4997 ATGACTCA GGCTAGCTACAACGA CCTTCTAG 13735 8878 AGAAGAGA & UGAGUCAU 4998 TCTGATGA GGCTAGCTACAACGA TCCTTCT 13736 8878 AGAAGAGA & UCAGACAU 4998 TCTGATGA GGCTAGCTACAACGA TCCTCT 13736 8878 AGAAGUGA & UCAGARAU 4998 AGATTCTAG GGCTAGCTACAACGA TCCTCT 13738 8866 UCAGAARU 4999 AGGATGA GGCTAGCTACAACGA TCCTCT 13739 8866 UCAUCAGA & UCAUCCUU 4990 AGGATGA GGCTAGCTACAACGA TCTGATGA 13739 8866 UCAUCCUU & CCCAUAGA 4991 GGTAGGTAGCTACAACGA TCTGATGA 13739 8856 CULUACCUU & CCCAUAGA 4992 TCTATGGG GGCTAGCTACAACGA AGGATGA 13741 8845 CAUCCUU & CCCAUAGA 4992 TCTATGGG GGCTAGCTACAACGA AGGATGA 13741 8847 UAGAGUGG UGCAAACA 4993 TGTATGGCCA GGCTAGCTACAACGA CACTCTCA 13744 8845 GARUGGGG UCAAACAC 4995 TGTTTGCA GGCTAGCTACAACGA CACCACC 13746 8841 GGGUGCA & CAUCAGA 4994 TCTATGG GGCTAGCTACAACGA CACCACC 13746 8841 GGGUGCA & CAUCAUGA 4999 TCTATCATG GGCTAGCTACAACGA CACCACC 13746 8839 GUGCAACA & UGAUGGUG 4999 CATCATCA GGCTAGCTACAACGA TCTATGCC 13746 8839 GUGCAACA & UGAUGGUG 4999 CATCATCA GGCTAGCTACAACGA TTGCACC 13746 8831 AUGAGUGG & UGAUGGG 4999 CATCATCA GGCTAGCTACAACGA TTGCACC 13746 8831 AUGAGUGG & UGAUGGG 4999 CATCATCA GGCTAGCTACAACGA TTGCACC 13746 8831 AUGAGUGG & UGAUGGG 4999 CATCATCA GGCTAGCTACAACGA CATCATTT 13749 8831 AUGAGUGG & UGAUGGG 5001 CTAGGCAA GGCTAGCTACAACGA CATCATCT 13751 8832 AUGAUGUG & UGAUGGG 5001 CTAGGCAA GGCTAGCTACAACGA CATCATCT 13753 8832 AUGAUGGG & UUGAUGG 5001 CTAGGCAA GGCTAGCTACAACGA CATCATCT 13753 8832 AUGAUGGG & UUGAUGG 5002 AGCAACA GGCTAGCTACAACGA CATCATCT 13753 8832 AUGAUGGG & UUGAUGG 5002 AGCAACA GGCTAGCTACAACGA CATCATCT 13753 8832 AUGAUGG & UUGAUGG 5004 AGCAACA GGCTAGCTACAACGA CATCATCT 13756 8832 AUGAUGG & UUGAUGG 5004 AGCAACA GGCTAGCTACAACGA CATCATCT 13756 8832 AUGAU			 		
8893 CUAGAAGG A UGGAGUCAU 4986 CTTCTCCA GGCTAGCTACAACGA CTTCTAG 13735 8882 GAGAAGAA G UGAGUCAU 4987 ATGACTCA GGCTAGCTACAACGA TCACTTCT 17337 8876 AGAAGUA G UCAUCAGA 4988 TCTGATUSA GGCTAGCTACAACGA GACTCACT 13736 8875 AGUAGUCA UCAUCACU 4999 GATTCTGA GGCTAGCTACAACGA GACTCACT 13736 8866 UCAUCAGA A UCAUCCU 4991 GGTAAGGA GGCTAGCTACAACGA GATCATCA 13740 8866 UCABCAGA A UCAUCAU 4992 TCTATUGG GCCTAGCTACAACGA GATCATCA 13742 8856 UCABCCAU A UGAGUGG 4992 TCTATUGG GCCTACCACGA GATCACAAGA 13742 8856 UCAUCCCU A UGAGUGG 4993 TCTATUGG GCCTAGCTACAACGA TCTATGG 13742 8851 CCCUUACCC A UGAGAUCA 4995 TGTTTGC GGCTAGCTACAACGA TCACTCTA 13748 8847 UAGGUGCA A CAUGAUGA 4995 TGTTTGC GGCTAGCTACAACGA TCCACTCT 13745 8841 GGUGCAAA C A UGAUGAU 4996 CATCATCA GGCTAGCTACAACGA TCCACTC 13747 8839 GUUCCAACA C AUGAGAU 4998 CATCATCA GGCTAGCTACAACGA TCCACTC					
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8785 UCUCCCAC G CAGCCCGC 5011 GCGGGCTG GGCTAGCTACAACGA GTGGGAGA 13760 8782 CCCACGCA G CCCGCGCA 5012 TGCGCGGG GGCTAGCTACAACGA TGCGTGGG 13761 8778 CGCAGCCC G CGCAAGGG 5013 CCCTTGCG GGCTAGCTACAACGA GGGCTGCG 13762 8776 CAGCCCGC G CAAGGGGG 5014 CCCCCTTG GGCTAGCTACAACGA GCGGGCTG 13763 8767 CAAGGGGG G UGGUGGG 5015 CCCCACCA GGCTAGCTACAACGA CCCCCCC 13764 8764 GGGGGGG G UGACGGGU 5016 TGACCCCA GGCTAGCTACAACGA CCCCCCC 13765 8759 GUGGGGG G UCACGGGU 5017 ACCCGTGA GGCTAGCTACAACGA CCCCCCC 13766 8756 GUGGGGUC A CGGGUGAC 5018 CTACCCCG GGCTAGCTACAACGA CCCCACCA 13767 8752 GGUCACGG G UGAGGUAC 5019 CTACCCCG GGCTAGCTACAACGA CCCCCCC 13768 8747 CGGGUGAG G UAGUACAC 5020 GTGTACTA GGCTAGCTACAACGA TCACCCG 13769 8744 GUGAGGUA G UACACCCU 5021 AGGGTAGCTACAACGA TACCTCC 13771 8742 GAGGUAGU A CACCCUUU 5022 AAAGGGT GGCTAGCTACAACGA ACTACCTC	8794	UUCUAGCU G UCUCCCAC	5009		13758
8782 CCCACGCA G CCCGCGCA 5012 TGCGCGGG GGCTAGCTACAACGA TGCGTGGG 13761 8778 CGCAGCCC G CGCAAGGG 5013 CCCTTGC GGCTAGCTACAACGA GGGCTGCG 13762 8776 CAGCCCGC G CAAGGGG 5014 CCCCCTTG GGCTAGCTACAACGA GCGGGCTG 13763 8767 CAAGGGGG G UGGUGGG 5015 CCCCACCA GGCTAGCTACAACGA CCCCCCT 13764 8764 GGGGGUG G UGGGGUCA 5016 TGACCCCA GGCTAGCTACAACGA CCCCCCC 13765 8759 GUGGUGGG G UCACGGGU 5017 ACCCGTGA GGCTAGCTACAACGA CCCACCAC 13766 8756 GUGGGGUC A CGGGUAG 5018 CTCACCCG GGCTAGCTACAACGA CCCACCAC 13767 8752 GUCACGG G UCAGGUAG 5019 CTACCTCA GGCTAGCTACAACGA CCCTACCAC 13768 8747 CGGGUGAG G UAGUACAC 5020 GTGTACTA GGCTAGCTACAACGA CTCACCCG 13769 8744 GUGAGGUA G UACACCCU 5021 AGGGTTACTACAACGA TACCTCAC 13770 8742 GAGGUAGU A CACCCUUU 5022 AAAGGGT GGCTAGCTACAACGA ACTACCC 13771 8740 GAUGAUGA C ACCCUUU 5023 CAAAAGGG GGCTAGCTACAACGA ACTACCC	8787	UGUCUCCC A CGCAGCCC	5010	GGGCTGCG GGCTAGCTACAACGA GGGAGACA	13759
8778 CGCAGCCC G CGCAAGGG 5013 CCCTTGCG GGCTAGCTACAACGA GGGCTGCG 13762 8776 CAGCCCGC G CAAGGGG 5014 CCCCCTTG GGCTAGCTACAACGA GCGGGCTG 13763 8767 CAAGGGGG G UGGUGGG 5015 CCCCACCA GGCTAGCTACAACGA CCCCCCT 13764 8764 GGGGGGUG G UGGGGUCA 5016 TGACCCCA GGCTAGCTACAACGA CCCCCCC 13765 8759 GUGGUGGG G UCACGGGU 5017 ACCCGTGA GGCTAGCTACAACGA CCCCCCC 13766 8756 GUGGGGUC A CGGGUGAG 5018 CTCACCCG GGCTAGCTACAACGA CCCACCAC 13767 8752 GGUCACGG G UGAGGUAG 5019 CTACCTCA GGCTACCAACGA CCCTACCAC 13768 8747 CGGGUGAG G UAGUACAC 5020 GTGTACTA GGCTACAACGA CTCACCCG 13769 8744 GUGAGGUA G UACACCCU 5021 AGGGTTACTACAACGA TACCTCAC 13770 8742 GAGGUAGU A CACCCUUU 5022 AAAGGGT GGCTAGCTACAACGA ACTACCT 13771 8740 GGUAGUAC A CCCUUUU 5023 CAAAAGGG GGCTAGCTACAACGA ACTACCT 13772 8732 ACCCUUU G CCAGAUGC 5024 GCATCTGG GGCTAGCTACAACGA ACAGGA TACTACC	8785	UCUCCCAC G CAGCCCGC	5011	GCGGGCTG GGCTAGCTACAACGA GTGGGAGA	13760
8776 CAGCCCGC G CAAGGGGG 5014 CCCCCTTG GGCTAGCTACAACGA GCGGGCTG 13763 8767 CAAGGGGG G UGGUGGGG 5015 CCCCACCA GGCTAGCTACAACGA CCCCCTTG 13764 8764 GGGGGGUG G UGGGGUCA 5016 TGACCCCA GGCTAGCTACAACGA CCCCCCC 13765 8759 GUGGUGGG G UCACGGGU 5017 ACCCGTGA GGCTAGCTACAACGA CCCCCCC 13766 8756 GUGGGGUC A CGGGUGAG 5018 CTCACCCG GGCTAGCTACAACGA CCCCCAC 13766 8752 GGUCACGG G UGAGGUAG 5019 CTACCTCA GGCTAGCTACAACGA CCGTGACC 13768 8747 CGGGUGAG G UAGUACAC 5020 GTGTACTA GGCTAGCTACAACGA CCGTGACC 13769 8744 GUGAGGUA G UACACCCU 5021 AGGGTGTA GGCTAGCTACAACGA CTCACCCG 13770 8742 GAGGUAGU A CACCCUUU 5022 AAAGGGT GGCTAGCTACAACGA ACTACCTC 13771 8740 GGUAGUAC A CCCUUUU 5022 AAAGGGT GGCTAGCTACAACGA ACTACCTC 13772 8732 ACCCUUUU G CCAGAUGC 5024 GCATCTGG GGCTAGCTACAACGA AAAAGGGT 13773 8727 UUUGCCAG A UGCAUCGU 5025 ACGATGCA GGCTAGCTACAACGA AAAAGGGT 13774 8728 UGCCAGAU G CAUCGUGU 5025 ACGATGCA GGCTAGCTACAACGA ACTCGCC 13776 8729 UGCCAGAU G CAUCGUGU 5026 ACACGATG GGCTAGCTACAACGA ACTCTGGC 13776 8720 GAUGCAU G UGUGCAAC 5026 GCACACGA GGCTAGCTACAACGA ACTCTGG 13776 8720 GAUGCAUC G UGUGCAAC 5028 GTTGCACA GGCTAGCTACAACGA ACTCTGG 13777 8718 UGCAUCGU G UGCAACUG 5029 CAGTTGCA GGCTAGCTACAACGA ACGATGCA 13777 8718 UGCAUCGU G UGCAACUG 5029 CAGTTGCA GGCTAGCTACAACGA ACGATGCA 13777 8718 UGCAUCGU G UGCAACUG 5029 CAGTTGCA GGCTAGCTACAACGA ACGATGCA 13777 8718 UGCAUCGU G UGCAACUG 5029 CAGTTGCA GGCTAGCTACAACGA ACACGATG 13777 8718 UGCAUCGU G UGCAACUG 5029 CAGTTGCA GGCTAGCTACAACGA ACACGATG 13777 8718 UGCAUCGU G UGCAACUG 5029 CAGTTGCA GGCTAGCTACAACGA ACACGATG 13779 8710 CAUCGUGA A CUGAUACG 5031 CGTATCAG GGCTAGCTACAACGA ACACGATG 13779 8710 CAUCGUGA A CUGAUACG 5031 CGTATCAG GGCTAGCTACAACGA CAGCTTGCA 13780	8782	CCCACGCA G CCCGCGCA	5012	TGCGCGGG GGCTAGCTACAACGA TGCGTGGG	13761
8767 CAAGGGGG G UGGUGGGG 5015 CCCCACCA GGCTAGCTACAACGA CCCCCTTG 13764 8764 GGGGGGUG G UGGGGUCA 5016 TGACCCCA GGCTAGCTACAACGA CACCCCCC 13765 8759 GUGGUGGG G UCACGGGU 5017 ACCCGTGA GGCTAGCTACAACGA CACCCCCC 13766 8756 GUGGGGUC A CGGGUGAG 5018 CTCACCCG GGCTAGCTACAACGA CCCACCAC 13767 8752 GGUCACGG G UGAGGUAG 5019 CTACCTCA GGCTAGCTACAACGA CCCTCAC 13767 8754 CGGGUGAG G UAGUACAC 5020 GTGTACTA GGCTAGCTACAACGA CCGTGACC 13768 8747 CGGGUGAG G UACACCCU 5021 AGGGTGTA GGCTAGCTACAACGA CTCACCCG 13769 8744 GUGAGGUA G UACACCCU 5021 AGGGTGTA GGCTAGCTACAACGA TACCTCAC 13770 8742 GAGGUAGU A CACCCUUU 5022 AAAGGGTG GGCTAGCTACAACGA ACTACCTC 13771 8740 GGUAGUAC A CCCUUUU 5023 CAAAAGGG GGCTAGCTACAACGA ACTACCTC 13772 8732 ACCCUUUU G CCAGAUGC 5024 GCATCTGG GGCTAGCTACAACGA AAAAGGGT 13773 8727 UUUGCCAG A UGCAUCGU 5025 ACGATGCA GGCTAGCTACAACGA ATCTGGCA 13774 8725 UGCCAGAU G CAUCGUGU 5026 ACACGATG GGCTAGCTACAACGA ATCTGGCA 13775 8723 CCAGAUGC A UCGUGUG 5026 ACACGATG GGCTAGCTACAACGA ATCTGGCA 13776 8723 CCAGAUGC A UCGUGUG 5027 GCACACGA GGCTAGCTACAACGA ATCTGGCA 13776 8720 GAUGCAUC UGUGCAAC 5028 GTTGCACA GGCTAGCTACAACGA GCATCTGG 13776 8720 GAUGCAUC UGUGCAAC 5028 GTTGCACA GGCTAGCTACAACGA ACGATGCA 13777 8718 UGCAUCGU G UGCAACUG 5029 CAGTTGCA GGCTAGCTACAACGA ACGATGCA 13778 8716 CAUCGUGU G CAACUGAU 5030 ATCAGTTG GGCTAGCTACAACGA ACACGATG 13779 8713 CGUGUGCA A CUGAUACG 5031 CGTATCAG GGCTAGCTACAACGA ACACGATG 13779 8709 UGCAACUG A UACGUUGG 5032 CCAACGTA GGCTAGCTACAACGA CAGTTGCA 13778	8778	CGCAGCCC G CGCAAGGG	5013	CCCTTGCG GGCTAGCTACAACGA GGGCTGCG	13762
8764 GGGGGGUG G UGGGGUCA 5016 TGACCCCA GGCTAGCTACAACGA CACCCCCC 13765 8759 GUGGUGGG G UCACGGGU 5017 ACCCGTGA GGCTAGCTACAACGA CCCACCAC 13766 8756 GUGGGGUC A CGGGUGAG 5018 CTCACCCG GGCTAGCTACAACGA GACCCCAC 13767 8752 GGUCACGG G UGAGGUAG 5019 CTACCTCA GGCTAGCTACAACGA CCGTGACC 13768 8747 CGGGUGAG G UAGUACAC 5020 GTGTACTA GGCTAGCTACAACGA CTCACCCG 13769 8744 GUGAGGUA G UACACCCU 5021 AGGGTGTA GGCTAGCTACAACGA TACCTCAC 13770 8742 GAGGUAGU A CACCCUUUU 5022 AAAGGGTG GGCTAGCTACAACGA ACTACCTC 13771 8740 GGUAGUAC A CCCUUUUG 5023 CAAAAGGG GGCTAGCTACAACGA GTACTACC 13772 8732 ACCCUUUU G CCAGAUGC 5024 GCATCTGG GGCTAGCTACAACGA AAAAGGGT 13773 8727 UUUGCCAG A UGCAUCGU 5025 ACGATGCA GGCTAGCTACAACGA ATCTGGCA 13774 8725 UGCCAGAU G CAUCGUGU 5026 ACACGATG GGCTAGCTACAACGA ATCTGGCA 13776 8723 CCAGAUGC A UCGUGUGC 5027 GCACACGA GGCTAGCTACAACGA ATCTGGCA 13776 8720 GAUGCAUC G UGUGCAAC 5028 GTTGCACA GGCTAGCTACAACGA GCATCTGG 13776 8720 GAUGCAUC G UGUGCAAC 5028 GTTGCACA GGCTAGCTACAACGA GATGCATC 13777 8718 UGCAUCGU G UGCAACUG 5029 CAGTTGCA GGCTAGCTACAACGA ACGATGCA 13778 8716 CAUCGUGU G CAACUGAU 5030 ATCAGTTG GGCTAGCTACAACGA ACACGATG 13779 8716 CAUCGUGA A CUGAUACG 5031 CGTATCAG GGCTAGCTACAACGA ACACGATG 13779 8713 CGUGUGCA A CUGAUACG 5031 CGTATCAG GGCTAGCTACAACGA TGCACACG 13780 8709 UGCAACUG A UACGUUGG 5032 CCAACGTA GGCTAGCTACAACGA CAGTTGCA 13778	8776	CAGCCCGC G CAAGGGGG	5014	CCCCCTTG GGCTAGCTACAACGA GCGGGCTG	13763
8759 GUGGUGGG G UCACGGGU 5017 ACCCGTGA GGCTAGCTACAACGA CCCACCAC 13766 8756 GUGGGGUC A CGGGUGAG 5018 CTCACCCG GGCTAGCTACAACGA GACCCCAC 13767 8752 GGUCACGG G UGAGGUAG 5019 CTACCTCA GGCTAGCTACAACGA CCGTGACC 13768 8747 CGGGUGAG G UAGUACAC 5020 GTGTACTA GGCTAGCTACAACGA CTCACCCG 13769 8744 GUGAGGUA G UACACCCU 5021 AGGGTGTA GGCTAGCTACAACGA CTCACCCG 13770 8742 GAGGUAGU A CACCCUUU 5022 AAAGGGTG GGCTAGCTACAACGA ACTACCTC 13771 8740 GGUAGUAC A CCCUUUUG 5023 CAAAAGGG GGCTAGCTACAACGA GTACTACC 13772 8732 ACCCUUUU G CCAGAUGC 5024 GCATCTGG GGCTAGCTACAACGA AAAAGGGT 13773 8727 UUUGCCAG A UGCAUCGU 5025 ACGATGCA GGCTAGCTACAACGA CTGGCAAA 13774 8725 UGCCAGAU G CAUCGUGU 5025 ACGATGCA GGCTAGCTACAACGA ATCTGGCA 13775 8723 CCAGAUGC A UCGUGUGC 5026 ACACGATG GGCTAGCTACAACGA ACTCTGGC 13776 8720 GAUGCAUC G UGUGCAAC 5028 GTTGCACA GGCTAGCTACAACGA GCATCTGG 13777 8718 UGCAUCGU G UGCAACUG 5029 CAGTTGCA GGCTAGCTACAACGA ACGATGCA 13777 8718 UGCAUCGU G UGCAACUG 5029 CAGTTGCA GGCTAGCTACAACGA ACGATGCA 13778 8716 CAUCGUGU G CAACUGAU 5030 ATCAGTTG GGCTAGCTACAACGA ACACGATG 13779 8716 CAUCGUGU G CAACUGAU 5030 ATCAGTTG GGCTAGCTACAACGA ACACGATG 13779 8717 CGUGUGCA A CUGAUACG 5031 CGTATCAG GGCTAGCTACAACGA TGCACACG 13780 8709 UGCAACUG A UACGUUGG 5032 CCAACGTA GGCTAGCTACAACGA CAGTTGCA 13778	8767	CAAGGGGG G UGGUGGGG	5015	CCCCACCA GGCTAGCTACAACGA CCCCCTTG	13764
8756 GUGGGGUC A CGGGUGAG 5018 CTCACCCG GGCTAGCTACAACGA GACCCCAC 13767 8752 GGUCACGG G UGAGGUAG 5019 CTACCTCA GGCTAGCTACAACGA CCGTGACC 13768 8747 CGGGUGAG G UAGUACAC 5020 GTGTACTA GGCTAGCTACAACGA CTCACCCG 13769 8744 GUGAGGUA G UACACCCU 5021 AGGGTGTA GGCTAGCTACAACGA TACCTCAC 13770 8742 GAGGUAGU A CACCCUUU 5022 AAAGGGTG GGCTAGCTACAACGA ACTACCTC 13771 8740 GGUAGUAC A CCCUUUUG 5023 CAAAAGGG GGCTAGCTACAACGA GTACTACC 13772 8732 ACCCUUUU G CCAGAUGC 5024 GCATCTGG GGCTAGCTACAACGA AAAAGGGT 13773 8727 UUUGCCAG A UGCAUCGU 5025 ACGATGCA GGCTAGCTACAACGA CTGGCAAA 13774 8725 UGCCAGAU G CAUCGUGU 5025 ACGATGCA GGCTAGCTACAACGA ATCTGGCA 13775 8723 CCAGAUGC A UCGUGUGC 5027 GCACACGA GGCTAGCTACAACGA ATCTGGCA 13776 8720 GAUGCAUC G UGUGCAAC 5028 GTTGCACA GGCTAGCTACAACGA GATGCATC 13777 8718 UGCAUCGU G UGCAACU 5029 CAGTTGCA GGCTAGCTACAACGA ACGATGCA 13778 8716 CAUCGUGU G CAACUGAU 5030 ATCAGTTG GGCTAGCTACAACGA ACGATGCA 13779 8713 CGUGUGCA A CUGAUACG 5031 CGTATCAG GGCTAGCTACAACGA CAGATGCA 13779 8713 CGUGUGCA A UACGUUGG 5032 CCAACGTA GGCTAGCTACAACGA CAGTTGCA 13780 8709 UGCAACUG A UACGUUGG 5032 CCAACGTA GGCTAGCTACAACGA CAGTTGCA 13780	8764	GGGGGUG G UGGGGUCA	5016	TGACCCCA GGCTAGCTACAACGA CACCCCCC	13765
8756 GUGGGGUC A CGGGUGAG 5018 CTCACCCG GGCTAGCTACAACGA GACCCCAC 13767 8752 GGUCACGG G UGAGGUAG 5019 CTACCTCA GGCTAGCTACAACGA CCGTGACC 13768 8747 CGGGUGAG G UAGUACAC 5020 GTGTACTA GGCTAGCTACAACGA CTCACCCG 13769 8744 GUGAGGUA G UACACCCU 5021 AGGGTGTA GGCTAGCTACAACGA TACCTCAC 13770 8742 GAGGUAGU A CACCCUUU 5022 AAAGGGTG GGCTAGCTACAACGA ACTACCTC 13771 8740 GGUAGUAC A CCCUUUUG 5023 CAAAAGGG GGCTAGCTACAACGA GTACTACC 13772 8732 ACCCUUUU G CCAGAUGC 5024 GCATCTGG GGCTAGCTACAACGA AAAAGGGT 13773 8727 UUUGCCAG A UGCAUCGU 5025 ACGATGCA GGCTAGCTACAACGA ATCTGGCA 13774 8725 UGCCAGAU G CAUCGUGU 5025 ACGATGCA GGCTAGCTACAACGA ATCTGGCA 13775 8723 CCAGAUGC A UCGUGUGC 5027 GCACACGA GGCTAGCTACAACGA ACTTGGCA 13776 8720 GAUGCAUC G UGUGCAAC 5028 GTTGCACA GGCTAGCTACAACGA GATCTGG 13777 8718 UGCAUCGU G UGCAACUG 5029 CAGTTGCA GGCTAGCTACAACGA ACGATGCAT 13778 8716 CAUCGUGU G CAACUGAU 5030 ATCAGTTG GGCTAGCTACAACGA ACACGATG 13779 8713 CGUGUGCA A CUGAUACG 5031 CGTATCAG GGCTAGCTACAACGA CAGTTGCA 13779 8713 CGUGUGCA A CUGAUACG 5031 CGTATCAG GGCTAGCTACAACGA CAGTTGCA 13780 8709 UGCAACUG A UACGUUGG 5032 CCAACGTA GGCTAGCTACAACGA CAGTTGCA 13780	8759	GUGGUGGG G UCACGGGU	5017	ACCCGTGA GGCTAGCTACAACGA CCCACCAC	13766
8747 CGGGUGAG G UAGUACAC 5020 GTGTACTA GGCTAGCTACAACGA CTCACCCG 13769 8744 GUGAGGUA G UACACCCU 5021 AGGGTGTA GGCTAGCTACAACGA TACCTCAC 13770 8742 GAGGUAGU A CACCCUUU 5022 AAAGGGTG GGCTAGCTACAACGA ACTACCTC 13771 8740 GGUAGUAC A CCCUUUUG 5023 CAAAAGGG GGCTAGCTACAACGA GTACTACC 13772 8732 ACCCUUUU G CCAGAUGC 5024 GCATCTGG GGCTAGCTACAACGA AAAAGGGT 13773 8727 UUUGCCAG A UGCAUCGU 5025 ACGATGCA GGCTAGCTACAACGA ATCTGGCA 13774 8725 UGCCAGAU G CAUCGUGU 5025 ACACGATG GGCTAGCTACAACGA ATCTGGCA 13775 8728 CCAGAUGC A UCGUGUGC 5027 GCACACGA GGCTAGCTACAACGA GCATCTGG 13776 8729 GAUGCAUC G UGUGCAAC 5028 GTTGCACA GGCTAGCTACAACGA GATGCATC 13777 8718 UGCAUCGU G UGCAACUG 5029 CAGTTGCA GGCTAGCTACAACGA ACGATGCA 13778 8716 CAUCGUGU G CAACUGAU 5030 ATCAGTTG GGCTAGCTACAACGA ACACGATG 13779 8713 CGUGUGCA A CUGAUACG 5031 CGTATCAG GGCTAGCTACAACGA CAGTTGCA 13780 8709 UGCAACUG A UACGUUGG 5032 CCAACGTA GGCTACAACGA CAGTTGCA 13781	8756	GUGGGGUC A CGGGUGAG	5018	CTCACCCG GGCTAGCTACAACGA GACCCCAC	
8744 GUGAGGUA G UACACCCU 5021 AGGGTGTA GGCTAGCTACAACGA TACCTCAC 13770 8742 GAGGUAGU A CACCCUUU 5022 AAAGGGTG GGCTAGCTACAACGA ACTACCTC 13771 8740 GGUAGUAC A CCCUUUUG 5023 CAAAAGGG GGCTAGCTACAACGA GTACTACC 13772 8732 ACCCUUUU G CCAGAUGC 5024 GCATCTGG GGCTAGCTACAACGA AAAAGGGT 13773 8727 UUUGCCAG A UGCAUCGU 5025 ACGATGCA GGCTAGCTACAACGA CTGGCAAA 13774 8725 UGCCAGAU G CAUCGUGU 5026 ACACGATG GGCTAGCTACAACGA ATCTGGCA 13775 8723 CCAGAUGC A UCGUGUGC 5027 GCACACGA GGCTAGCTACAACGA GCATCTGG 13776 8720 GAUGCAUC G UGUGCAAC 5028 GTTGCACA GGCTAGCTACAACGA GATGCATC 13777 8718 UGCAUCGU G UGCAACUG 5029 CAGTTGCA GGCTAGCTACAACGA ACGATGCA 13778 8716 CAUCGUGU G CAACUGAU 5030 ATCAGTTG GGCTAGCTACAACGA ACACGATG 13779 8713 CGUGUGCA A CUGAUACG 5031 CGTATCAG GGCTAGCTACAACGA TGCACACG 13780 8709 UGCAACUG A UACGUUGG 5032 CCAACGTA GGCTAGCTACAACGA CAGTTGCA 13781	8752	GGUCACGG G UGAGGUAG	5019	CTACCTCA GGCTAGCTACAACGA CCGTGACC	13768
8742 GAGGUAGU A CACCCUUU 5022 AAAGGGTG GGCTAGCTACAACGA ACTACCTC 13771 8740 GGUAGUAC A CCCUUUUG 5023 CAAAAGGG GGCTAGCTACAACGA GTACTACC 13772 8732 ACCCUUUU G CCAGAUGC 5024 GCATCTGG GGCTAGCTACAACGA AAAAGGGT 13773 8727 UUUGCCAG A UGCAUCGU 5025 ACGATGCA GGCTAGCTACAACGA CTGGCAAA 13774 8725 UGCCAGAU G CAUCGUGU 5026 ACACGATG GGCTAGCTACAACGA ATCTGGCA 13775 8723 CCAGAUGC A UCGUGUGC 5027 GCACACGA GGCTAGCTACAACGA GCATCTGG 13776 8720 GAUGCAUC G UGUGCAAC 5028 GTTGCACA GGCTAGCTACAACGA GATGCATC 13777 8718 UGCAUCGU G UGCAACUG 5029 CAGTTGCA GGCTAGCTACAACGA ACGATGCA 13778 8716 CAUCGUGU G CAACUGAU 5030 ATCAGTTG GGCTAGCTACAACGA ACACGATG 13779 8713 CGUGUGCA A CUGAUACG 5031 CGTATCAG GGCTAGCTACAACGA TGCACACG 13780 8709 UGCAACUG A UACGUUGG 5032 CCAACGTA GGCTAGCTACAACGA CAGTTGCA 13781	8747	CGGGUGAG G UAGUACAC	5020	GTGTACTA GGCTAGCTACAACGA CTCACCCG	13769
8740 GGUAGUAC A CCCUUUUG 5023 CAAAAGGG GGCTAGCTACAACGA GTACTACC 13772 8732 ACCCUUUU G CCAGAUGC 5024 GCATCTGG GGCTAGCTACAACGA AAAAGGGT 13773 8727 UUUGCCAG A UGCAUCGU 5025 ACGATGCA GGCTAGCTACAACGA CTGGCAAA 13774 8725 UGCCAGAU G CAUCGUGU 5026 ACACGATG GGCTAGCTACAACGA ATCTGGCA 13775 8723 CCAGAUGC A UCGUGUGC 5027 GCACACGA GGCTAGCTACAACGA GCATCTGG 13776 8720 GAUGCAUC G UGUGCAAC 5028 GTTGCACA GGCTAGCTACAACGA GATGCATC 13777 8718 UGCAUCGU G UGCAACUG 5029 CAGTTGCA GGCTAGCTACAACGA ACGATGCA 13778 8716 CAUCGUGU G CAACUGAU 5030 ATCAGTTG GGCTAGCTACAACGA ACACGATG 13779 8713 CGUGUGCA A CUGAUACG 5031 CGTATCAG GGCTAGCTACAACGA TGCACACG 13780 8709 UGCAACUG A UACGUUGG 5032 CCAACGTA GGCTAGCTACAACGA CAGTTGCA 13781	8744	GUGAGGUA G UACACCCU	5021		13770
8732 ACCCUUUU G CCAGAUGC 5024 GCATCTGG GGCTAGCTACAACGA AAAAGGGT 13773 8727 UUUGCCAG A UGCAUCGU 5025 ACGATGCA GGCTAGCTACAACGA CTGGCAAA 13774 8725 UGCCAGAU G CAUCGUGU 5026 ACACGATG GGCTAGCTACAACGA ATCTGGCA 13775 8723 CCAGAUGC A UCGUGUGC 5027 GCACACGA GGCTAGCTACAACGA GCATCTGG 13776 8720 GAUGCAUC G UGUGCAAC 5028 GTTGCACA GGCTAGCTACAACGA GATGCATC 13777 8718 UGCAUCGU G UGCAACUG 5029 CAGTTGCA GGCTAGCTACAACGA ACGATGCA 13778 8716 CAUCGUGU G CAACUGAU 5030 ATCAGTTG GGCTAGCTACAACGA ACACGATG 13779 8713 CGUGUGCA A CUGAUACG 5031 CGTATCAG GGCTAGCTACAACGA TGCACACG 13780 8709 UGCAACUG A UACGUUGG 5032 CCAACGTA GGCTAGCTACAACGA CAGTTGCA 13781	8742	GAGGUAGU A CACCCUUU	5022	AAAGGGTG GGCTAGCTACAACGA ACTACCTC	13771
8727 UUUGCCAG A UGCAUCGU 5025 ACGATGCA GGCTAGCTACAACGA CTGGCAAA 13774 8725 UGCCAGAU G CAUCGUGU 5026 ACACGATG GGCTAGCTACAACGA ATCTGGCA 13775 8723 CCAGAUGC A UCGUGUGC 5027 GCACACGA GGCTAGCTACAACGA GCATCTGG 13776 8720 GAUGCAUC G UGUGCAAC 5028 GTTGCACA GGCTAGCTACAACGA GATGCATC 13777 8718 UGCAUCGU G UGCAACUG 5029 CAGTTGCA GGCTAGCTACAACGA ACGATGCA 13778 8716 CAUCGUGU G CAACUGAU 5030 ATCAGTTG GGCTAGCTACAACGA ACACGATG 13779 8713 CGUGUGCA A CUGAUACG 5031 CGTATCAG GGCTAGCTACAACGA TGCACACG 13780 8709 UGCAACUG A UACGUUGG 5032 CCAACGTA GGCTAGCTACAACGA CAGTTGCA 13781	8740	GGUAGUAC A CCCUUUUG	5023	CAAAAGGG GGCTAGCTACAACGA GTACTACC	13772
8725 UGCCAGAU G CAUCGUGU 5026 ACACGATG GGCTAGCTACAACGA ATCTGGCA 13775 8723 CCAGAUGC A UCGUGUGC 5027 GCACACGA GGCTAGCTACAACGA GCATCTGG 13776 8720 GAUGCAUC G UGUGCAAC 5028 GTTGCACA GGCTAGCTACAACGA GATGCATC 13777 8718 UGCAUCGU G UGCAACUG 5029 CAGTTGCA GGCTAGCTACAACGA ACGATGCA 13778 8716 CAUCGUGU G CAACUGAU 5030 ATCAGTTG GGCTAGCTACAACGA ACACGATG 13779 8713 CGUGUGCA A CUGAUACG 5031 CGTATCAG GGCTAGCTACAACGA TGCACACG 13780 8709 UGCAACUG A UACGUUGG 5032 CCAACGTA GGCTAGCTACAACGA CAGTTGCA 13781	8732	ACCCUUUU G CCAGAUGC	5024	GCATCTGG GGCTAGCTACAACGA AAAAGGGT	13773
8723 CCAGAUGC A UCGUGUGC 5027 GCACACGA GGCTAGCTACAACGA GCATCTGG 13776 8720 GAUGCAUC G UGUGCAAC 5028 GTTGCACA GGCTAGCTACAACGA GATGCATC 13777 8718 UGCAUCGU G UGCAACUG 5029 CAGTTGCA GGCTAGCTACAACGA ACGATGCA 13778 8716 CAUCGUGU G CAACUGAU 5030 ATCAGTTG GGCTAGCTACAACGA ACACGATG 13779 8713 CGUGUGCA A CUGAUACG 5031 CGTATCAG GGCTAGCTACAACGA TGCACACG 13780 8709 UGCAACUG A UACGUUGG 5032 CCAACGTA GGCTAGCTACAACGA CAGTTGCA 13781	8727	UUUGCCAG A UGCAUCGU	5025	ACGATGCA GGCTAGCTACAACGA CTGGCAAA	13774
8720 GAUGCAUC G UGUGCAAC 5028 GTTGCACA GGCTAGCTACAACGA GATGCATC 13777 8718 UGCAUCGU G UGCAACUG 5029 CAGTTGCA GGCTAGCTACAACGA ACGATGCA 13778 8716 CAUCGUGU G CAACUGAU 5030 ATCAGTTG GGCTAGCTACAACGA ACACGATG 13779 8713 CGUGUGCA A CUGAUACG 5031 CGTATCAG GGCTAGCTACAACGA TGCACACG 13780 8709 UGCAACUG A UACGUUGG 5032 CCAACGTA GGCTAGCTACAACGA CAGTTGCA 13781	8725	UGCCAGAU G CAUCGUGU	5026		13775
8718 UGCAUCGU G UGCAACUG 5029 CAGTTGCA GGCTAGCTACAACGA ACGATGCA 13778 8716 CAUCGUGU G CAACUGAU 5030 ATCAGTTG GGCTAGCTACAACGA ACACGATG 13779 8713 CGUGUGCA A CUGAUACG 5031 CGTATCAG GGCTAGCTACAACGA TGCACACG 13780 8709 UGCAACUG A UACGUUGG 5032 CCAACGTA GGCTAGCTACAACGA CAGTTGCA 13781	8723	CCAGAUGC A UCGUGUGC	5027		13776
8716 CAUCGUGU G CAACUGAU 5030 ATCAGTTG GGCTAGCTACAACGA ACACGATG 13779 8713 CGUGUGCA A CUGAUACG 5031 CGTATCAG GGCTAGCTACAACGA TGCACACG 13780 8709 UGCAACUG A UACGUUGG 5032 CCAACGTA GGCTAGCTACAACGA CAGTTGCA 13781	8720	GAUGCAUC G UGUGCAAC	5028		13777
8713 CGUGUGCA A CUGAUACG 5031 CGTATCAG GGCTAGCTACAACGA TGCACACG 13780 8709 UGCAACUG A UACGUUGG 5032 CCAACGTA GGCTAGCTACAACGA CAGTTGCA 13781	8718	UGCAUCGU G UGCAACUG	5029		13778
8709 UGCAACUG A UACGUUGG 5032 CCAACGTA GGCTAGCTACAACGA CAGTTGCA 13781	8716	CAUCGUGU G CAACUGAU	5030	ATCAGTTG GGCTAGCTACAACGA ACACGATG	13779
	8713	CGUGUGCA A CUGAUACG	5031		13780
9707 CANCIGNII A COUTICOAD FORD COMPAGE COMPAG	8709		5032		13781
5707 CAACOGAO A COUDGAG 5033 CTCCAACG GGCTAGCTACAACGA ATCAGTTG 13782	8707	CAACUGAU A CGUUGGAG	5033	CTCCAACG GGCTAGCTACAACGA ATCAGTTG	13782

8705	ACUGAUAC G UUGGAGGA	5034	TCCTCCAA GGCTAGCTACAACGA GTATCAGT	13783
8696	UUGGAGGA G CAUGAUGU	5035	ACATCATG GGCTAGCTACAACGA TCCTCCAA	13784
8694	GGAGGAGC A UGAUGUUA	5036	TAACATCA GGCTAGCTACAACGA GCTCCTCC	13785
8691	GGAGCAUG A UGUUAUCA	5037	TGATAACA GGCTAGCTACAACGA CATGCTCC	13786
8689	AGCAUGAU G UUAUCAAC	5038	GTTGATAA GGCTAGCTACAACGA ATCATGCT	13787
8686	AUGAUGUU A UCAACUCC	5039	GGAGTTGA GGCTAGCTACAACGA AACATCAT	13788
8682	UGUUAUCA A CUCCAAGU	5040	ACTTGGAG GGCTAGCTACAACGA TGATAACA	13789
8675	AACUCCAA G UCGUAUUC	5041	GAATACGA GGCTAGCTACAACGA TTGGAGTT	13790
8672	UCCAAGUC G UAUUCCGG	5042	CCGGAATA GGCTAGCTACAACGA GACTTGGA	13791
8670	CAAGUCGU A UUCCGGUU	5043	AACCGGAA GGCTAGCTACAACGA ACGACTTG	13792
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8658	CGGUUGGG G CGGGUCCC	5045	GGGACCCG GGCTAGCTACAACGA CCCAACCG	13794
8654	UGGGCGG G UCCCCGGG	5046	CCCGGGGA GGCTAGCTACAACGA CCGCCCCA	13795
8641	CGGGGGG G CAGAGUAC	5047	GTACTCTG GGCTAGCTACAACGA CCCCCCG	13796
8636	GGGCAGA G UACCUAGU	5048	ACTAGGTA GGCTAGCTACAACGA TCTGCCCC	
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8629	AGUACCUA G UCAUAGCC			13798
8626	ACCUAGUC A UAGCCUCC	5050	GGCTATGA GGCTAGCTACAACGA TAGGTACT	13799
	UAGUCAUA G CCUCCGUG	5051	GGAGGCTA GGCTAGCTACAACGA GACTAGGT	13800
8623		5052	CACGGAGG GGCTAGCTACAACGA TATGACTA	13801
8617	UAGCCUCC G UGAAGACU	5053	AGTCTTCA GGCTAGCTACAACGA GGAGGCTA	13802
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8607	GAAGACUC G UAGGCUCG	5055	CGAGCCTA GGCTAGCTACAACGA GAGTCTTC	13804
8603	ACUCGUAG G CUCGCCGC	5056	GCGGCGAG GGCTAGCTACAACGA CTACGAGT	13805
8599	GUAGGCUC G CCGCGUCC	5057	GGACGCGG GGCTAGCTACAACGA GAGCCTAC	13806
8596	GGCUCGCC G CGUCCUCU	5058	AGAGGACG GGCTAGCTACAACGA GGCGAGCC	13807
8594	CUCGCCGC G UCCUCUUG	5059	CAAGAGGA GGCTAGCTACAACGA GCGGCGAG	13808
8584	CCUCUUGG G UCCCCGCA	5060	TGCGGGGA GGCTAGCTACAACGA CCAAGAGG	13809
8578	GGGUCCCC G CACUUUCA	5061	TGAAAGTG GGCTAGCTACAACGA GGGGACCC	13810
8576	GUCCCCGC A CUUUCACA	5062	TGTGAAAG GGCTAGCTACAACGA GCGGGGAC	13811
8570	GCACUUUC A CAGAUAAC	5063	GTTATCTG GGCTAGCTACAACGA GAAAGTGC	13812
8566	UUUCACAG A UAACGACC	5064	GGTCGTTA GGCTAGCTACAACGA CTGTGAAA	13813
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8552	ACCAGGUC G UCUCCACA	5068	TGTGGAGA GGCTAGCTACAACGA GACCTGGT	13817
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8542	CUCCACAC A CGAGCAUC	5071	GATGCTCG GGCTAGCTACAACGA GTGTGGAG	13820
8538	ACACACGA G CAUCGUGC	5072	GCACGATG GGCTAGCTACAACGA TCGTGTGT	13821
8536	ACACGAGC A UCGUGCAG	5073	CTGCACGA GGCTAGCTACAACGA GCTCGTGT	13822
8533	CGAGCAUC G UGCAGUCC	5074	GGACTGCA GGCTAGCTACAACGA GATGCTCG	13823
8531	AGCAUCGU G CAGUCCUG	5075	CAGGACTG GGCTAGCTACAACGA ACGATGCT	13824
8528	AUCGUGCA G UCCUGGAG	5076	CTCCAGGA GGCTAGCTACAACGA TGCACGAT	13825
	GUCCUGGA G CUUCGCAG	5077	CTGCGAAG GGCTAGCTACAACGA TCCAGGAC	13826
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	GCUUCGCA G CUCGACAG	5079	CTGTCGAG GGCTAGCTACAACGA TGCGAAGC	13828
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	CUCGACAG G CCGCAGAG	5081	CTCTGCGG GGCTAGCTACAACGA CTGTCGAG	13830
	GACAGGCC G CAGAGGCU	5082	AGCCTCTG GGCTAGCTACAACGA GGCCTGTC	13831
	CCGCAGAG G CUUUCAAG	5083	CTTGAAAG GGCTAGCTACAACGA CTCTGCGG	13832
<u> </u>	GCUUUCAA G UAACAUGU	5084	ACATGTTA GGCTAGCTACAACGA TTGAAAGC	13833
	UUCAAGUA A CAUGUGAG	5085	CTCACATG GGCTAGCTACAACGA TACTTGAA	13834
	CAAGUAAC A UGUGAGGG	5086	CCCTCACA GGCTAGCTACAACGA TACTTGAA	
	AGUAACAU G UGAGGGUA			13835
	AUGUGAGG G UAUUACCA	5087	TACCCTCA GGCTAGCTACAACGA ATGTTACT	13836
	GUGAGGU A UUACCACA	5088	TGGTAATA GGCTAGCTACAACGA CCTCACAT	13837
~~/+	OUGAGGGO A OUACCACA	5089	TGTGGTAA GGCTAGCTACAACGA ACCCTCAC	13838

8468	AGGGUAUU A CCACAGCU	5090	AGCTGTGG GGCTAGCTACAACGA AATACCCT	13839
8465	GUAUUACC A CAGCUGGU	5090	ACCAGCTG GGCTAGCTACAACGA GGTAATAC	13840
8462	UUACCACA G CUGGUCGU	5092	ACGACCAG GGCTAGCTACAACGA TGTGGTAA	13841
8458	CACAGCUG G UCGUCAGC	5092	GCTGACGA GGCTAGCTACAACGA CAGCTGTG	13842
		5094	CGTGCTGA GGCTAGCTACAACGA CAGCTGTG	
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8451	GGUCGUCA G CACGCCGC	5095	GCGGCGTG GGCTAGCTACAACGA TGACGACC	13844
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8429	CGGCACCG G CGAUAACC	5103	GGTTATCG GGCTAGCTACAACGA CGGTGCCG	13852
8426	CACCGGCG A UAACCGCA	5104	TGCGGTTA GGCTAGCTACAACGA CGCCGGTG	13853
8423	CGGCGAUA A CCGCAGUU	5105	AACTGCGG GGCTAGCTACAACGA TATCGCCG	13854
8420	CGAUAACC G CAGUUCUG	5106	CAGAACTG GGCTAGCTACAACGA GGTTATCG	13855
8417	UAACCGCA G UUCUGCCC	5107	GGGCAGAA GGCTAGCTACAACGA TGCGGTTA	13856
8412	GCAGUUCU G CCCUUUUG	5108	CAAAAGGG GGCTAGCTACAACGA AGAACTGC	13857
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8398	UUGAAUUA G UCAGAGGA	5110	TCCTCTGA GGCTAGCTACAACGA TAATTCAA	13859
8390	GUCAGAGG A CCCCCGAU	5111	ATCGGGGG GGCTAGCTACAACGA CCTCTGAC	13860
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8376	GAUAUAAA G CCGCUCUG	5114	CAGAGCGG GGCTAGCTACAACGA TTTATATC	13863
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8353	ACCUUAUG G CCUGUCUG	5120	CAGACAGG GGCTAGCTACAACGA CATAAGGT	13869
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8344	CCUGUCUG G CUUCGGGG	5122	CCCCGAAG GGCTAGCTACAACGA CAGACAGG	13871
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8327	GCCAAGUC A CAACAUUG	5125	CAATGTTG GGCTAGCTACAACGA GACTTGGC	13874
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8294	ACACGGAU G UCACUCUC	5134	GAGAGTGA GGCTAGCTACAACGA ATCCGTGT	13883
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8284	CACUCUCG G UGACUGUU	5136	AACAGTCA GGCTAGCTACAACGA CGAGAGTG	13885
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8278	CGGUGACU G UUGAGUCG	5138	CGACTCAA GGCTAGCTACAACGA AGTCACCG	13887
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-	UAUGCAAA G CCCAUAGG CAAAGCCC A UAGGGCAU		ATGCCCTA GGCTAGCTACAACGA GGGCTTTG	
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8226	UUUCUUUG A UUUCCAGG	5151	CCTGGAAA GGCTAGCTACAACGA CAAAGAAA	13900
8218	AUUUCCAG G CAUUCACC	5152	GGTGAATG GGCTAGCTACAACGA CTGGAAAT	13901
8216	UUCCAGGC A UUCACCAG	5153	CTGGTGAA GGCTAGCTACAACGA GCCTGGAA	13902
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8171	UGGAAUCC G UAUGAAGA	5162	TCTTCATA GGCTAGCTACAACGA GGATTCCA	13911
8169	GAAUCCGU A UGAAGAGC	5163	GCTCTTCA GGCTAGCTACAACGA ACGGATTC	13912
8162	UAUGAAGA G CCCAUCAC	5164	GTGATGGG GGCTAGCTACAACGA TCTTCATA	13913
8158	AAGAGCCC A UCACGGCC	5165	GGCCGTGA GGCTAGCTACAACGA GGGCTCTT	13914
8155	AGCCCAUC A CGGCCUGA	5166	TCAGGCCG GGCTAGCTACAACGA GATGGGCT	13915
8152	CCAUCACG G CCUGAGGA	5167	TCCTCAGG GGCTAGCTACAACGA CGTGATGG	13916
8140	GAGGAAGG G UGGAGACC	5168	GGTCTCCA GGCTAGCTACAACGA CCTTCCTC	13917
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8102	UCGCACAC A CGAACCCC	5178	GGGGTTCG GGCTAGCTACAACGA GTGTGCGA	13927
8098	ACACACGA A CCCCCAAG	5179	CTTGGGGG GGCTAGCTACAACGA TCGTGTGT	13928
8090	ACCCCCAA G UCUGGGAA	5180	TTCCCAGA GGCTAGCTACAACGA TTGGGGGT	13929
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8077	GGAACACG A UAAGGCGA	5183	TCGCCTTA GGCTAGCTACAACGA CGTGTTCC	13932
8072	ACGAUAAG G CGAGCUGG	5184	CCAGCTCG GGCTAGCTACAACGA CTTATCGT	13933
8068	UAAGGCGA G CUGGCUUG	5185	CAAGCCAG GGCTAGCTACAACGA TCGCCTTA	13934
8064	GCGAGCUG G CUUGCGGC	5186	GCCGCAAG GGCTAGCTACAACGA CAGCTCGC	13935
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8024	AAAACCUC A UUUUUUGC	5193	GCAAAAA GGCTAGCTACAACGA GAGGTTTT	13942
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7993	CAAUUGGU G UCUCAGUG	5202	CACTGAGA GGCTAGCTACAACGA ACCAATTG	13951
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7822	CUGUGGAC G CCUUCGCC	5240	GGCGAAGG GGCTAGCTACAACGA GTCCACAG	13989
7816	ACGCCUUC G CCUUCAUC	5241	GATGAAGG GGCTAGCTACAACGA GAAGGCGT	13990
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7763	UGCAGUCU G UCAAAGGU	5252	TTGACAGA GGCTAGCTACAACGA TGCAAGTC	14001
7756	UGUCAAAG G UGACCUUC	5253	ACCTTTGA GGCTAGCTACAACGA AGACTGCA	14002
		5254	GAAGGTCA GGCTAGCTACAACGA CTTTGACA	14003
7753	CAAAGGUG A CCUUCUUC	5255	GAAGAAGG GGCTAGCTACAACGA CACCTTTG	14004
7743	CUUCUUCU G CCGCUGGC	5256	GCCAGCGG GGCTAGCTACAACGA AGAAGAAG	14005
7740	CUUCUGCC G CUGGCUUG	5257	CAAGCCAG GGCTAGCTACAACGA GGCAGAAG	14006

7732 GCGGCGCG G CUUGGGCA 52555 TGCGCAGG GGCTAGCTACAGGA AAGCCAGC 14007 7732 GCGGCGC G CUGGCAGA 5255 TGCGCAGG GGCTAGCTACAGGA AAGCCAGC 14008 7737 CUGGCCU G CUGGCAGA 5261 TCTCGCAG GGCTAGCTACAGGA AAGCCAGC 14009 7727 CUGCGCU G CAGAGAGU 5261 TCTCGCAG GGCTAGCTACAGGA CAGAGCA 14009 7727 CUGCGCU G CAGAGAGU 5261 TCTCGCAG GGCTAGCTACAGGA AAGCCAGC 14011 7720 UGCGAGAU G UUUGUAG 5261 TCTCGCAG GGCTAGCTACAGGA CAGAGCA 14011 7720 UGCGAGAU G UUUGUAG 5262 CTACAACA GGCTAGCTACAGGA ACACCTC 14011 7721 GAGAUGUU G UAGCGUAG 5263 CCTCACAA GGCTAGCTACAAGGA ACACCTC 14013 7721 AUGUIGUA G CUUGACC 5265 GGCTACCAA GGCTAGCTACAACAC AACACCT 14013 7722 GUUGUAGC G UAGACCAU 5266 TAGCTACA GGCTAGCTACAACAC AACACCT 14015 7723 GUUGUAGC G UAGACCAU 5266 CACACAC GGCTAGCTACAACAC ACACCACA CACCACAAGCA ACACCACACA CACCACACA GCCTACACAC ACACCACACA CACCACACACA CACCACACACA CACCAC	7726	Transaction of Chitococcia	5250	ACCOCATO COCHACCHACATOCA CACCOCCA	14007
	7736	UGCCGCUG G CUUGCGCU	5258	AGCGCAAG GGCTAGCTACAACGA CAGCGGCA	14007
7722 CUUGGCG G CAGAUGU S 261 ACATCTCG GGCTAGCTACACAA AGGCCAAC 14010 7722 GGUGGGAG A UGURURUM S 225 CRACACA GGCTAGCTACAACGA CTCGGCAC 14011 7727 UGCGAGAU G UUGUAGCG 5263 CGCTACAA GGCTAGCTACAACGA ACATCTCC 14012 7724 CAGAUGUU G UAGGGUAG 5264 CTAGGCTA GGCTAGCTACAACGA ACATCTC 14012 7714 AGGAUGUU G UAGGGUAG 5264 CTAGGCTA GGCTAGCTACAACGA ACATCTC 14013 7714 AGGUUGUA G CGUAGACC 5265 GGTTAGG GGCTAGCTACAACGA ACATCTC 14013 7712 GUUGUAGC G UAGACCAU 5266 ATGGTCAA GGCTAGCTACAACGA ACATCTC 14013 7712 GUUGUAGC G UAGACCAU 5266 ATGGTCAA GGCTAGCTACAACGA CTACACCT 14015 7705 CUUGAGACC A UGUUUG 5267 CAACATGG GGCTAGCTACAACGA GCTACACCT 14015 7706 CUUGAGACC A UGUUUGUG 5269 CCACACAA GGCTAGCTACAACGA GCTACACCT 14017 7703 UAGACCAU G UUGUGGG 5269 CCACACAA GGCTAGCTACAACGA GTGTCTAC 14017 7704 ACACAUGUU G UGUGACG 5270 CCTACAC GGCTAGCTACAACGA ACATCGT 14019 7697 AUGUUGUG G UGAGCCAG 5271 CTGCGTCA GGCTAGCTACAACGA ACATCGT 14019 7698 UUGUGGUG A CGCACAA 5271 CTGCGTCA GGCTAGCTACAACGA CACACACA 14022 7692 GUGGUGAC G CAGCAAAA 5272 TTGCTGCG GGCTAGCTACAACGA CACACACA 14022 7692 GUGGUGAC G CAAAAAAA 5272 TTGCTGCG GGCTAGCTACAACGA GCCACACA 14022 7692 AGAGAAGA G UUGUCCAA 5273 CTTTGCTG GGCTAGCTACAACGA TCGTCCAC 14022 7692 GUGGUGAC G CAAAAAAA 5273 CTTTGCTGCG GGCTAGCTACAACGA TCTTCTCT 14024 7692 AAAGAGUU G UUGUCCAA 5275 TTGGACA GGCTAGCTACAACGA TCTTCTCT 14024 7692 AAAGAGUU G UUGUCCAA 5275 TTGGACA GGCTAGCTACAACGA TCTTTCT 14024 7692 AGAGAGAG AU UUGUCCAA 5275 TTGGACA GGCTAGCTACAACGA ACTCTTTT 14025 7692 AUGUCUCA C GCGUUGA 5276 GCGTTGACGTACAACGA ACTCTTT 14024 7692 AGAGGACA C CUUGCUCA 5276 GCGTTGACGTACAACGA ACTCTTT 14024 7692 AGAGGACA C CUUGCUCA 5276 GCGTTGACGACGACCAACGA ACTCTTT 14024 7692 AGAGGACA C CUUGCUCA 5276 GCGTTGACGACGACCAACGA ACTCTTT 14024 7692 AGAGGACA C UUGCUCA 5281 GCACACACA GGCCACACACA ACACCAC 14030 7694 GUGGUCA C GCGGUGAG 5277 CTACAACG GGCTACCTACAACGA CAACCAC 14030 7694 GUGCUCA C GCGGUGAG 5277 CTACAACG GGCTACCTACAACGA CAACCAC 14030 7695 GGCAACUC G CUUGCUCA 5281 GACACCACA GGCTACCTACAACGA CAACCAC 14032 7666 ACCCCACA G CUUGCUCA 5281 GACACCAC GGCTACCTACAACGA CAACCAC	\vdash				
					
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7717 GAGNUGUU G UNGCGUAG 5264 CTRACGTA GOCTAGCTACACAA ANCATCTC 14013 77124 AUGUUGUAG G GUAGACCA 5255 GOTCTAGG GGCTAGCTAACGA TACAACAT 14016 7712 QUUGUAGC G UAGACCAU 5266 ATGGTCTA GGCTACAACGA TACAACAT 14015 7708 CUGUAGACCA UGUUGUG 5267 CAACATGG GGCTACCTACAACGA CTACCGTA 14016 7703 UAGACCAU G UUGUUGUG 5269 CACCACAG GGCTACCTACAACGA ATGGTCTA 14016 7700 ACCAUGUU G UUGUUGUG 5269 CACCACAA GGCTACCTACAACGA ATGGTCTA 14018 7697 AUGUUGUG G UGAGCCAG 5271 CTROCOTA GGCTACCTACACAGA ACCACACT 14018 7697 AUGUGUGU G AGCACAA 5271 CTROCOTA GGCTACCTACACGA CACACAT 14022 7692 GUGGUGAC G CACAAAA 5272 TTTTOCTG GGCTACCTACACGA CTACACAA 14022 7692 AUGUGUGAC G CARABAGU 5274 ACTCTTT GGCTACACACAA CTACACA 14022 7692 AUGACAACA 5275 TTTTAGACGA GGCTACCTACACACA ACCATTACTACACACA 14022 7692 AUGACACA 5277 TCAACAGG GGCTACCTACACACA	——		 		
7712 GUIGUIGAG G UAGACCAU \$265 ATGGTTA GGCTACAACCA CTACGACTA 14015 7708 UAGGUAG A CCAUGUUG \$267 CAACATGG GGCTAGCTACAACGA CTACGCTA 14015 7705 GGUAGACC A UGUUGUG \$268 CACCACAG GGCTAGCTACAACGA GGTTAGCTACA 14017 7703 UAGACCAU G UUGUGGG \$269 CACCACAG GGCTAGCTACAACGA AGTGTACT 14017 7700 ACCUGUU G UGUGGAC \$271 CTGCGTCA GGCTAGCTACAACGA ACACACT 14019 7697 AUGUGGAC GAGCAGAG \$272 TTGGTGCG GGCTAGCTACAACGA CACACACT 14020 7694 UUGUGGOGA G CAGCAAG \$272 TTGGTGCG GGCTAGCTACAACGA CACACACT 14022 7692 GUGGUGAC G CAGCAAG \$273 TTGGGTGCG GGCTAGCTACAACGA CTCGCCC 14022 7693 AGCAAGAGA G UUGCUCAA \$275 TTGAGCA GGCTAGCTACAACGA TCGGTCCC 14023 7692 AGCAAGAGA G UUGCUCA \$276 GGGTGGGCTACAACGA GGTTAGCACACGA TCGCACACAC 14021 7692 AGCACACCA \$275 TTGAGCA GGCTAGCTACAACGA TCGCACCACACACACACACACACACACACACACACACACA					
	—				14014
P705	7712		5266	ATGGTCTA GGCTAGCTACAACGA GCTACAAC	14015
7703	7708	UAGCGUAG A CCAUGUUG	5267	CAACATGG GGCTAGCTACAACGA CTACGCTA	14016
7700 ACCAUGUU G UGGUGACG \$270 CGTCACCA GGCTAGCTACACGA AACATGGT 14019 7697 AUGUUGUG G UGACGCAGA \$271 CTGCGTCA GGCTAGCTACAACGA CACACAT 14020 7694 UUGUGGUG A GCGACCAA \$272 CTTGCTGG GGCTAGCTACAACGA CACACACA 14021 7692 GUGGUGAC G CACAAAG \$2273 CTTTCCTG GGCTAGCTACAACGA GTCACCAC 14022 7682 AGCAAAGA G UUGCUCAA \$275 TTGAGCAA GGCTAGCTACAACGA GTCACCAC 14023 7699 AACAGUU G CUCAACGC \$276 GCGTTGGG GGCTAGCTACAACGA ACCTCTTT 14026 76794 GUUGCUCA A CGCGUUGA \$2277 TCAACGCG GGCTAGCTACACGA ACCTCTTT 14026 76714 GUUGCUCA A CGCGUUGA \$2278 CATCAACG GGCTAGCTACACGA ATGAGCA 14026 7670 UCCAACGC G UUGAUGG \$278 CCCAACGG GGCTAGCTACACGA ACGAGCA CACGAGCA 14028 7662 GUUGAUGG G CAACUUGC \$281 GCTACCACGA GGCTACCACGA CCATCAAC 14033 7655 GGCAACUU G CUUCCUU \$282 AAAGCAAG GGCTACAACGA ACCATCAAC 14031 7645 UUUCCUCC G CAGCGAUG \$284 ATGCCTG GGCTAGCTACAACGA CCATCCAC	7705	CGUAGACC A UGUUGUGG	5268		14017
7697 AUGUUGUG G UGACGCAG \$271 CTGCGTCA GCTACACACA GCCAACAT 14020 7694 UUGUGGUG A CGCACAA \$272 TTGCTGG GGCTAGCTACACAGG CACCACA 14021 7692 GUGGUGAC G CACCAAA \$273 CTTTGCTG GGCTAGCTACACAGG CACCACA 14021 7693 GUGACGA G CACAAAG \$273 CTTTGCTG GGCTAGCTACAACGA TGCTCCAC 14023 7692 AGCAAGAG G UUGCUCAA \$275 TTGAGCAA GCTAGCTACAACGA TCTTTGCT 14024 7679 AAAGAGUU G CUCAACGC \$276 GCGTTGGG GGCTAGCTACAACGA TCTTTGCT 14027 7674 GUUGCUCA C GUUGAUG \$277 TCAACGG GGCTAGCTACAACGA TCTTGAG 14027 7670 CUCAACGC G UUGAUGG \$277 CCCATCAA GGCTACAACGA GTGTAGCA 14027 7660 CUCACCG G UUGAUGG \$279 CCCATCAA GGCTACAACGA CCACCGAC 14027 7661 CUCAACGC G UUGAUGG \$280 GTTGCCCA GGCTAGCTACAACGA GCGTTCAAC 14037 7662 GUUGAUGG G CAACUUGC \$280 GTTGCCCA GGCTAGCTACAACGA TGCCCACC 14031 7652 GUUGAUGG G CAACCUUG \$282 AAAGCAG GCTACACCAACA TGCCCACCAC 14031<	7703		5269	CACCACAA GGCTAGCTACAACGA ATGGTCTA	14018
1099	7700	ACCAUGUU G UGGUGACG	5270	CGTCACCA GGCTAGCTACAACGA AACATGGT	14019
7692 GUGGUGAC G CAGCANAG 5273 CTTTGCTG GGCTAGCTACAACGA GTCACCAC 14022 7699 GUGAGGCA G CANAGAGU 5274 ACTCTTTG GGCTAGCACACGA TGGGTCAC 14023 7692 AGCANAGA G UUGCUCAA 5275 TTGAGGAA GGCTAGCTACAACGA TGTTGCT 14024 7679 ANAGAGUU G CUCAACGC 5276 GCGTTGAG GGCTACCAACGA ACTCTTT 14025 7674 GUUGUCAA C GCUUJAGG 5277 TCAAGGG GGCTACCTACAACGA TGAGCAAC 14027 7670 CUCAACGC G UUGAUGG 5279 CCCATCAA GGCTAGCTACAACGA GGTGGTGACA 14028 7666 AGCGUUG A UUGAUGG 5280 GTTGCCA GGCTAGCTACAACGA CAACGCAT 14028 7666 AGGUUGA A UUGCUCU 5281 GCAAGTTG GGCTAGCTACAACGA CAACGAC TACACACA 14030 7659 GAUGGGA A CUUCCUC 5283 GAGGAAG GGCTACCTACAACGA TGCCCATC 14031 7655 GCCACUU G CUUCCUC 5283 GAGGAAAG GGCTACCTACAACGA GAGGAAA 14033 7645 UUUCCUC G CAGGGAU 5284 ATGCGCTG GGCTACCTACAACGA GAGGAAA 14033 7642 CUUCCGCA G CALUGGGU 5285 GCCATGCG GGCTACCTACAACGA GCTGCCA	7697	AUGUUGUG G UGACGCAG	5271	CTGCGTCA GGCTAGCTACAACGA CACAACAT	14020
7689 GUGACGCA G CANAGAGU 5274 ACTCTTTG GGCTAGCTACAACGA TGCGTCAC 14023 7682 AGCAAAGA G UUGCUCAA 5275 TTGAGCAA GGCTACCAACGA TCTTTGCT 14024 7679 AAAAGAGU G CUCAACC 5275 GCGTGAGA GGCTACCAACGA ACTCTTTT 14025 7674 GUUGCUCA A CGCGUUGA 5277 TCAACGCG GCTACCTACAACGA ACTCTTTT 14025 7670 CUCAACGC G UUGAUGG 5278 CATCAACG GGCTACCTACAACGA GTGAGCA 14027 7670 CUCAACGC G UUGAUGG 5279 CCCATCAA GGCTAGCTACAACGA GTGAGCA 14027 7666 ACGCGUUG A UGGCCAAC 5280 GTTGCCCA GGCTACCTACAACGA CAACCACT 14027 7667 GAGGABUGG A CUUGCUUU 5281 GCAAGTTG GGCTAGCTACAACGA CCATCAAC 14030 7659 GAUGGGCA A CUUGCUU 5282 AAAGCAG GGCTACCTACAACGA TGCCCACC 14031 7645 UUUCCUC G CAGCGAU 5281 AYACCGTG GGCTAGCTACAACGA TGCGCACC 14037 7640 UCCGCACC G CAUGGCU 5285 GCCTGCTG GGCTAGCTACAACGA TGCGCACA 14033 7633 CCCAUGAG C GUGAUCA 5286 ACGCCATG GGCTAGCTACAACGA CTGCGCT	7694	UUGUGGUG A CGCAGCAA	5272	TTGCTGCG GGCTAGCTACAACGA CACCACAA	14021
7682 AGCAAAGA G UUGCUCAA 5275 TTGAGCAA GGCTAGCTACAACGA TCTTTGCT 14024 7679 AAAGAGUU G CUCAACGC 5276 GGCTTAGA GGCTACAACGA AACTCTTT 14025 7674 GUUGCUCAA C GCGUUGAUG 5277 TCAAGGG GGCTAGCTACAACGA TAGCAAC 14026 7670 CUCAACG G GUUGAUG 5278 CATCAACG GGCTACAACGA GTTGAGCA 14027 7670 CUCAACG G UUGAUGG 5280 GTTGCCCA GGCTAGCTACAACGA GACGGGTT 14029 7662 GUUGAUGG G CAACUUGC 5281 GCAAGTTG GGCTACAACGA ACCGCTT 14029 7659 GAUGGGCA A CUUGCUU 5282 AAAGCAAG GGCTACACACAA ACGATTCCC 14031 7659 GAUGGGCA A CUUCCUC 5283 GAAGGAAG GGCTACACACAA ACGATTCCC 14032 7645 UUUCCUC G CAGCGCAU 5284 ATGCGTG GGCTACAACGA TACCCACGA ACTTCCC 14032 7645 UUUCCUCC G CAUGGCGU 5285 GCCATGGG GGTAGCTACAACGA TACGACGA TACGACGA 14033 7640 UCCGCAG G CAUGGCGU 5286 ACGCATG GGCTAGCTACAACGA TACGACGA 14036 7638 CGCABCGG G CAUGGCGU 5286 TCCAGCAG GGCTAGCTACAACGA CATGCGA	7692	GUGGUGAC G CAGCAAAG	5273	CTTTGCTG GGCTAGCTACAACGA GTCACCAC	14022
7679 ANAGAGUU G CUCAACGC 5276 GCGTTGAG GGCTAGCTACAACGA AACTCTTT 14025 7674 GUUGCUCA A CGGUUGA 5277 TCAAGGG GGCTAGCTACAACGA TGAGCAAC 14025 7672 UGCUCAAC G CGUUGAUG 5278 CATCAACG GGCTAGCTACAACGA TGTGAGCA 14027 7670 CUCAACGC G UUGAUGG 5279 CCCATCAA GGCTAGCTACAACGA CGTTGAGC 14028 7666 ACGCGUUG A UGGGCAAC 5280 GTTGCCCA GGCTAGCTACAACGA CACGCCT 14029 7662 GUUGAUGG C CAACUUGC 5281 GCAGTGG GGCTAGCTACAACGA CACACCAAC 14030 7659 GAUGACAU G CUUUCUC 5283 GAGGAAAG GGCTAGCTACAACGA TGCCCATC 14031 7655 GGCAACUU G CUUUCUC 5283 GAGGAAAG GGCTAGCTACAACGA AGGAGAAA 14033 7642 CCUCCCCA G CGCCAU 5284 ATGGCTG GGCTAGCTACAACGA TCCGAGCA 14033 7643 UCCGCAGC G CAUGGCU 5286 ACGCCATG GGCTAGCTACAACGA TCCGAGCA 14035 7640 UCCGCAGC G UGGCGUA 5286 ACGCCATG GGCTAGCTACAACGA CCGCCTGC 14035 7633 CGCAGGG G UGGAUCA 5288 TGATCAC GGCTAGCTACAACGA GCCATGCG	7689	GUGACGCA G CAAAGAGU	5274	ACTCTTTG GGCTAGCTACAACGA TGCGTCAC	14023
7674 GUUGCUCA A CGCGUUGA 5277 TCAACGGG GCTAGCTACAACGA TGAGCAAC 14026 7672 UGCUCAAC G CGUUGAUG 5278 CATCAACG GCTTAGCTACAACGA GTTGAGCA 14027 7670 CUCAACGC G UUGAUGG 5278 CCATCAA GGCTAGCTACAACGA GTGAGTACAACGA 14028 7666 ACCGUUG A UGGCAAC 5280 GTTGCCCA GGCTAGCTACAACGA CAACGACT 14029 7662 GUUGAUGG G CAACUUGC 5281 GCAAGTG GGCTAGCTACAACGA CACCACCA 14030 7659 GAUGGGCA A CUUGCUUU 5282 AAAGCAAG GGCTAGCTACAACGA CACCCACCCATC 14031 7655 GACACUU G CUUCUCUC 5283 GAGGAAG GGCTAGCTACAACGA CACCCACCCACCCACCCACCCACCCACCCACC	7682	AGCAAAGA G UUGCUCAA	5275	TTGAGCAA GGCTAGCTACAACGA TCTTTGCT	14024
7672 UGCUCAACC CGUUGAUG 5278 CATCAACG GCTTGACG 14027 7670 CUCAACCC GUUGAUGG 5279 CCCATCAA GCTTGACTACAACGA GCTTGAG 14028 7666 ACGCGUUG AUGGCAAC 5280 GTTGCCCA GCTAGCTACAACGA CACCGCT 14029 7652 GUUGAUGG 5281 GCAAGTTG GCTAGCTACAACGA CACCCATC 14039 7655 GGGAACTU GUUUCCUC 5283 GAGGAAG GCTTAGCTACAACGA TGCCCATC 14031 7645 UUUCCUC 5283 GAGGAAGG GCTAGCTACAACGA TGCGAGGA 14032 7645 UUUCCUCC 6 CAGCGCAU 5284 ATGCGCTG GGCTAGCTACAACGA AGGTGAGGA 14032 7642 CCUCCGCA G CAGUGGC 5285 GCCATGCG GGCTAGCTACAACGA GCTGGGAG 14035 7638 CGCACGGC AUGGCGUGA 5287 TCACGCA GGCTAGCTACAACGA ACTGCCCT 14037 7633 AUGGCGUG UCAGGCG 5289 CCTCGATC	7679	AAAGAGUU G CUCAACGC	5276	GCGTTGAG GGCTAGCTACAACGA AACTCTTT	14025
7670 CUCAACGC G UUGAUGGG 5279 CCCATCAA GGCTAGCTACAACGA GCGTTGAG 14028 7666 ACGCGUUG A UGGGCAAC 5280 GTTGCCCA GGCTAGCTACAACGA CAACGGCT 14029 7662 GUUGAUGG G CAACUUGC 5281 GCAAGTTG GGCTAGCTACAACGA CAACGGCT 14030 7659 GAUGGGCA A CUUGCUUU 5282 AAAGCAAG GGCTAGCTACAACGA CAGCAACGA 14031 7655 GGCAACUU G CUUUCCUC 5283 GAGGAAAG GGCTAGCTACAACGA AAGTTGCC 14032 7645 UUUCCUCC G CAGGCAU 5284 ATGCGCTG GGCTAGCTACAACGA AGGAAAA 14033 7640 UCCGCAGC G CGCAUGGC 5285 GCCATGCG GGCTAGCTACAACGA GCGTGCG 14035 7638 CGCAGCGC A UGGCGUGA 5287 TCACGCCA GGCTAGCTACAACGA GCGTGCG 14036 7633 CGCAUGG C CUGAUCA 5288 TGATCAC GGCTAGCTACAACGA CATGCCT 14037 7630 AUGGCGUG A UCAGGG 5289 CCTGATCA GGCTAGCTACAACGA CACGCCT 14037 7622 AUCAGGGC G CCCGUC 5291 GACGGCG GGCTAGCTACAACGA CATGCGT 14039 7624 UGAUCAGG G CCCGUCA 5292 TGGACGGG GGCTAGCTACAACGA CCTGATT	7674	GUUGCUCA A CGCGUUGA	5277	TCAACGCG GGCTAGCTACAACGA TGAGCAAC	14026
7666 ACGCGUUG A UGGCAAC 5280 GTTGCCCA GGCTACAACGA CAACGGT 14029 7662 GUUGAUGG G CAACUUGC 5281 GCAAGTTG GGCTACAACGA CCATCAAC 14030 7659 GAUGGGCA A CUUGCUUU 5282 AAAGCAAG GGCTAGCTACAACGA TGCCCATC 14031 7655 GGCAACUU G CUUCCUC 5283 GAAGAAAG GGCTAGCTACAACGA AGTTGCC 14032 7645 UUUCCUCC G CAGCGCAU 5284 ATGCGCTG GGCTAGCTACAACGA AGTGCGAGA 14033 7640 UUCCCCCAG G CAGUGGC 5285 GCCATGCG GGCTAGCTACAACGA GTGCGGAG 14034 7638 CGCAGCGC G AUGGCGU 5286 ACGCCATG GGCTAGCTACAACGA TGCGGAGA 14036 7633 AGCGCAUGG G CGUGAUCA 5288 TGATCACG GGCTAGCTACAACGA CCGCCTGC 14037 7633 AGCGCAUGG G UGAUCAG 5289 CCTGATCA GGCTAGCTACAACGA CCGCCTGC 14037 7630 AUGGCGUG A UCAGGGC 5290 CCGCCTGA GGCTAGCTACAACGA CCGCCTT 14039 7624 UGAUCAGG 6 CGCCCUC 5291 GACGGGC GGCTAGCTACAACGA CCGCCTT 14040 7618 GGGGCCC G UCCAUGUG 5292 TGGACGG GCTAGCTACAACGA CGGCC	7672	UGCUCAAC G CGUUGAUG	5278	CATCAACG GGCTAGCTACAACGA GTTGAGCA	14027
7666 ACGCGUUG A UGGGCAAC 5280 GTTGCCCA GGCTAGCTACAACGA CAACGCGT 14029 7662 GUUGAUGG G CAACUUGC 5281 GCAAGTTG GGCTAGCTACAACGA CCATCAAC 14030 7659 GAUGGGCA A CUUGCUU 5282 AAAGCAAG GGCTAGCTACAACGA TGCCCATC 14031 7655 GGCAAGUU G CUUCCUC 5283 GAGGAAAG GGCTAGCTACAACGA AAGTTGCC 14032 7645 UUUCCUCC G CAGGAGAU 5284 ATGCGTG GGCTAGCTACAACGA AGTTGCGAGA 14033 7640 UCCCCAGC G CGCAUGGC 5285 GCCATGCG GGCTAGCTACAACGA GCTGCGGAGA 14034 7640 UCCCCAGC G CAUGGCU 5286 ACGCCATG GGCTAGCTACAACGA GCTGCGGAGAA 14035 7638 CGCAGGC A UGGCGUACA 5286 ACGCCATG GGCTAGCTACAACGA CATGCCT 14036 7633 AGCCAUGG C UGAUCAG 5289 CCTGATCA GGCTAGCTACAACGA CATGCCT 14037 7633 CGCAUGGC A UCAGGGC 5289 CCTGATCAACGA GCTAGCTACAACGA CATGCCT 14037 7622 UGAUCAGG 5289 CCGATGCTACAACGA CATGCCCT 14039 7624 UGAUCAGG CCCGUCA 5291 GACGGCG GGCTAGCTACAACGA CCCCTGATA	7670	CUCAACGC G UUGAUGGG	5279	CCCATCAA GGCTAGCTACAACGA GCGTTGAG	
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7659 GAUGGGCA A CUUGCUUU 5282 AAAGCAAG GGCTAGCTACAACGA TGCCCATC 14031 7655 GGCAACUU G CUUUCCUC 5283 GAGGAAAG GGCTAGCTACAACGA AAGTTGCC 14032 7645 UUUCCUCC G CAGCGCAU 5284 ATGCGCTG GGCTAGCTACAACGA GAGGAGAA 14032 7642 CUUCGCAG G CAGCGCAU 5285 GCCATGCG GGCTAGCTACAACGA GCGCGGG 14034 7640 UCCGCAGC G CAUGGCGU 5286 ACGCCATG GGCTAGCTACAACGA GCCTGCG 14035 7638 CCCAGCGC A UGGCGUGA 5287 TCACGCCA GGCTAGCTACAACGA GCCTGCG 14036 7633 ACCAGCAG G UGAUCA 5288 TGATCACG GGCTAGCTACAACGA GCCTGCG 14038 7630 AUGGCGUG A UCAGGG S290 CGCCTGA GGCTAGCTACAACGA CACGCCTT 14039 7624 UGAUCAGG G CCCGUCCA 5291 GACGGGC GGCTAGCTACAACGA CACGCCTAT 14039 7618 GGCCCGC G UCCAUGUG 5292 TGGACTGG GGCTAGCTACAACGA CCTGATCA 14041 7618 GGCCGUC A UGUGUAGG 5292 TGGACTGG GGCTAGCTACAACGA GGCGCCC 14042 7614 GCCGUCAU G UGAGACAU 5296 ATTCCTACAC GGCTAGCTACAACGA GGACGGC 14043	7662	GUUGAUGG G CAACUUGC	5281	GCAAGTTG GGCTAGCTACAACGA CCATCAAC	
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AGCAGACG A CAUCCUCG 5302 CGAGGATG GGCTAGCTACAACGA CGTCTGCT 14051 7586 CAGACGAC A UCCUCGCC 5303 GGCGAGGA GGCTAGCTACAACGA GTCGTCTG 14052 7580 ACAUCCUC G CCAGCCUC 5304 GAGGCTGG GGCTAGCTACAACGA GAGGATGT 14053 7576 CCUCGCCA G CCUCUUCG 5305 CGAAGAGG GGCTAGCTACAACGA TGGCGAGG 14054 7568 GCCUCUUC G CUCACGGU 5306 ACCGTGAG GGCTAGCTACAACGA GAGAGAGC 14055 7564 CUUCGCUC A CGGUAGAC 5307 GTCTACCG GGCTAGCTACAACGA GAGCGAAG 14056 7561 CGCUCACG G UAGACCAA 5308 TTGGTCTA GGCTAGCTACAACGA CGTGAGCG 14057 7557 CACGGUAG A CCAAGACC 5309 GGTCTTGG GGCTAGCTACAACGA CTACCGTG 14058 7551 AGACCAAG A CCCGUCGC 5310 GCGACGGG GGCTAGCTACAACGA CTTGGTCT 14059 7547 CAAGACCC G UCGCUGAG 5311 CTCAGCGA GGCTAGCTACAACGA GACGGGTC 14060	!				
7586 CAGACGAC A UCCUCGCC 5303 GGCGAGGA GGCTAGCTACAACGA GTCGTCTG 14052 7580 ACAUCCUC G CCAGCCUC 5304 GAGGCTGG GGCTAGCTACAACGA GAGGATGT 14053 7576 CCUCGCCA G CCUCUUCG 5305 CGAAGAGG GGCTAGCTACAACGA TGGCGAGG 14054 7568 GCCUCUUC G CUCACGGU 5306 ACCGTGAG GGCTAGCTACAACGA GAAGAGGC 14055 7564 CUUCGCUC A CGGUAGAC 5307 GTCTACCG GGCTAGCTACAACGA GAGCGAAG 14056 7561 CGCUCACG G UAGACCAA 5308 TTGGTCTA GGCTAGCTACAACGA CGTGAGCG 14057 7557 CACGGUAG A CCAAGACC 5309 GGTCTTGG GGCTAGCTACAACGA CTACCGTG 14058 7551 AGACCAAG A CCCGUCGC 5310 GCGACGGG GGCTAGCTACAACGA CTTCGTCT 14059 7547 CAAGACCC G UCGCUGAG 5311 CTCAGCGA GGCTAGCTACAACGA GACGGGTC 14060 7544 GACCCGUC G CUGAGAUC 5312 GATCTCAG GGCTAGCTACAACGA GACGGGTC 14061			 		
ACAUCCUC G CCAGCCUC 5304 GAGGCTGG GGCTAGCTACAACGA GAGGATGT 14053 7576 CCUCGCCA G CCUCUUCG 5305 CGAAGAGG GGCTAGCTACAACGA TGGCGAGG 14054 7568 GCCUCUUC G CUCACGGU 5306 ACCGTGAG GGCTAGCTACAACGA GAAGAGGC 14055 7564 CUUCGCUC A CGGUAGAC 5307 GTCTACCG GGCTAGCTACAACGA GAGCGAAG 14056 7561 CGCUCACG G UAGACCAA 5308 TTGGTCTA GGCTAGCTACAACGA CGTGAGCG 14057 7557 CACGGUAG A CCAAGACC 5309 GGTCTTGG GGCTAGCTACAACGA CTACCGTG 14058 7551 AGACCAAG A CCCGUCGC 5310 GCGACGGG GGCTAGCTACAACGA CTTCGTCT 14059 7547 CAAGACCC G UCGCUGAG 5311 CTCAGCGA GGCTAGCTACAACGA GGGTCTTG 14060 7544 GACCCGUC G CUGAGAUC 5312 GATCTCAG GGCTAGCTACAACGA GACGGGTC 14061					
7576 CCUCGCCA G CCUCUUCG 5305 CGAAGAGG GGCTAGCTACAACGA TGGCGAGG 14054 7568 GCCUCUUC G CUCACGGU 5306 ACCGTGAG GGCTAGCTACAACGA GAAGAGGC 14055 7564 CUUCGCUC A CGGUAGAC 5307 GTCTACCG GGCTAGCTACAACGA GAGCGAAG 14056 7561 CGCUCACG G UAGACCAA 5308 TTGGTCTA GGCTAGCTACAACGA CGTGAGCG 14057 7557 CACGGUAG A CCAAGACC 5309 GGTCTTGG GGCTAGCTACAACGA CTACCGTG 14058 7551 AGACCAAG A CCCGUCGC 5310 GCGACGGG GGCTAGCTACAACGA CTTGGTCT 14059 7547 CAAGACCC G UCGCUGAG 5311 CTCAGCGA GGCTAGCTACAACGA GGGTCTTG 14060 7544 GACCCGUC G CUGAGAUC 5312 GATCTCAG GGCTAGCTACAACGA GACGGGTC 14061	\vdash				
7568 GCCUCUUC G CUCACGGU 5306 ACCGTGAG GGCTAGCTACAACGA GAAGAGGC 14055 7564 CUUCGCUC A CGGUAGAC 5307 GTCTACCG GGCTAGCTACAACGA GAGCGAAG 14056 7561 CGCUCACG G UAGACCAA 5308 TTGGTCTA GGCTAGCTACAACGA CGTGAGCG 14057 7557 CACGGUAG A CCAAGACC 5309 GGTCTTGG GGCTAGCTACAACGA CTACCGTG 14058 7551 AGACCAAG A CCCGUCGC 5310 GCGACGGG GGCTAGCTACAACGA CTTGGTCT 14059 7547 CAAGACCC G UCGCUGAG 5311 CTCAGCGA GGCTAGCTACAACGA GGGTCTTG 14060 7544 GACCCGUC G CUGAGAUC 5312 GATCTCAG GGCTAGCTACAACGA GACGGGTC 14061	\vdash				
7564 CUUCGCUC A CGGUAGAC 5307 GTCTACCG GGCTAGCTACAACGA GAGCGAAG 14056 7561 CGCUCACG G UAGACCAA 5308 TTGGTCTA GGCTAGCTACAACGA CGTGAGCG 14057 7557 CACGGUAG A CCAAGACC 5309 GGTCTTGG GGCTAGCTACAACGA CTACCGTG 14058 7551 AGACCAAG A CCCGUCGC 5310 GCGACGGG GGCTAGCTACAACGA CTTGGTCT 14059 7547 CAAGACCC G UCGCUGAG 5311 CTCAGCGA GGCTAGCTACAACGA GGGTCTTG 14060 7544 GACCCGUC G CUGAGAUC 5312 GATCTCAG GGCTAGCTACAACGA GACGGGTC 14061					
7561 CGCUCACG G UAGACCAA 5308 TTGGTCTA GGCTAGCTACAACGA CGTGAGCG 14057 7557 CACGGUAG A CCAAGACC 5309 GGTCTTGG GGCTAGCTACAACGA CTACCGTG 14058 7551 AGACCAAG A CCCGUCGC 5310 GCGACGGG GGCTAGCTACAACGA CTTGGTCT 14059 7547 CAAGACCC G UCGCUGAG 5311 CTCAGCGA GGCTAGCTACAACGA GGGTCTTG 14060 7544 GACCCGUC G CUGAGAUC 5312 GATCTCAG GGCTAGCTACAACGA GACGGGTC 14061	\vdash				
7557 CACGGUAG A CCAAGACC 5309 GGTCTTGG GGCTAGCTACAACGA CTACCGTG 14058 7551 AGACCAAG A CCCGUCGC 5310 GCGACGGG GGCTAGCTACAACGA CTTGGTCT 14059 7547 CAAGACCC G UCGCUGAG 5311 CTCAGCGA GGCTAGCTACAACGA GGGTCTTG 14060 7544 GACCCGUC G CUGAGAUC 5312 GATCTCAG GGCTAGCTACAACGA GACGGGTC 14061					
7551 AGACCAAG A CCCGUCGC 5310 GCGACGGG GGCTAGCTACAACGA CTTGGTCT 14059 7547 CAAGACCC G UCGCUGAG 5311 CTCAGCGA GGCTAGCTACAACGA GGGTCTTG 14060 7544 GACCCGUC G CUGAGAUC 5312 GATCTCAG GGCTAGCTACAACGA GACGGGTC 14061	-	 			14057
7547 CAAGACCC G UCGCUGAG 5311 CTCAGCGA GGCTAGCTACAACGA GGGTCTTG 14060 7544 GACCCGUC G CUGAGAUC 5312 GATCTCAG GGCTAGCTACAACGA GACGGGTC 14061				GGTCTTGG GGCTAGCTACAACGA CTACCGTG	14058
7544 GACCCGUC G CUGAGAUC 5312 GATCTCAG GGCTAGCTACAACGA GACGGGTC 14061				GCGACGGG GGCTAGCTACAACGA CTTGGTCT	
7777			5311	CTCAGCGA GGCTAGCTACAACGA GGGTCTTG	14060
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	7538	UCGCUGAG A UCGGGAUC	5313	GATCCCGA GGCTAGCTACAACGA CTCAGCGA	14062

		1 5374	AGGGGGG AGGGT GGT GT AGG AGGGT MCM	74060
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7524	AUCCCCCG G CUCCCCCU	5315	AGGGGGAG GGCTAGCTACAACGA CGGGGGAT	14064
7506	AAGGGGGG G CAUAGAGG	5316	CCTCTATG GGCTAGCTACAACGA CCCCCCTT	14065
7504	GGGGGGC A UAGAGGAG	5317	CTCCTCTA GGCTAGCTACAACGA GCCCCCCC	14066
7496	AUAGAGGA G UACGACUC	5318	GAGTCGTA GGCTAGCTACAACGA TCCTCTAT	14067
7494	AGAGGAGU A CGACUCAA	5319	TTGAGTCG GGCTAGCTACAACGA ACTCCTCT	14068
7491	GGAGUACG A CUCAACGU	5320	ACGTTGAG GGCTAGCTACAACGA CGTACTCC	14069
7486	ACGACUCA A CGUCGGAU	5321	ATCCGACG GGCTAGCTACAACGA TGAGTCGT	14070
7484	GACUCAAC G UCGGAUCC	5322	GGATCCGA GGCTAGCTACAACGA GTTGAGTC	14071
7479	AACGUCGG A UCCUGCGU	5323	ACGCAGGA GGCTAGCTACAACGA CCGACGTT	14072
7474	CGGAUCCU G CGUCACCG	5324	CGGTGACG GGCTAGCTACAACGA AGGATCCG	14073
7472	GAUCCUGC G UCACCGUC	5325	GACGGTGA GGCTAGCTACAACGA GCAGGATC	14074
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7466	GCGUCACC G UCAUUGGA	5327	TCCAATGA GGCTAGCTACAACGA GGTGACGC	14076
7463	UCACCGUC A UUGGAGGU	5328	ACCTCCAA GGCTAGCTACAACGA GACGGTGA	14077
7456	CAUUGGAG G UCUGGUCG	5329	CGACCAGA GGCTAGCTACAACGA CTCCAATG	14078
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7441	CGGGGGG G CGGUUGCC	5331	GGCAACCG GGCTAGCTACAACGA CCCCCCG	14080
7438	GGGGGCG G UUGCCGUA	5332	TACGGCAA GGCTAGCTACAACGA CGCCCCCC	14081
7435	GGGCGGUU G CCGUACCU	5333	AGGTACGG GGCTAGCTACAACGA AACCGCCC	14082
7432	CGGUUGCC G UACCUCUA	5334	TAGAGGTA GGCTAGCTACAACGA GGCAACCG	14083
7430	GUUGCCGU A CCUCUAUC	5335	GATAGAGG GGCTAGCTACAACGA ACGGCAAC	14084
7424	GUACCUCU A UCAGCGGC	5336	GCCGCTGA GGCTAGCTACAACGA AGAGGTAC	14085
7420	CUCUAUCA G CGGCCGAU	5337	ATCGGCCG GGCTAGCTACAACGA TGATAGAG	
7417	UAUCAGCG G CCGAUGAU	5338		14086
\vdash			ATCATCGG GGCTAGCTACAACGA CGCTGATA	14087
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7400	UCAGAGCU G CCGAAGGU	5342	ACCTTCGG GGCTAGCTACAACGA AGCTCTGA	14091
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7387	AGGUCUUU G UGGCGAGC	5344	GCTCGCCA GGCTAGCTACAACGA AAAGACCT	14093
7384	UCUUUGUG G CGAGCUCC	5345	GGAGCTCG GGCTAGCTACAACGA CACAAAGA	14094
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7375	CGAGCUCC G CCAAGGCA	5347	TGCCTTGG GGCTAGCTACAACGA GGAGCTCG	14096
7369	CCGCCAAG G CAGAAGAC	5348	GTCTTCTG GGCTAGCTACAACGA CTTGGCGG	14097
7362	GGCAGAAG A CACGGUGG	5349	CCACCGTG GGCTAGCTACAACGA CTTCTGCC	14098
7360	CAGAAGAC A CGGUGGAC	5350	GTCCACCG GGCTAGCTACAACGA GTCTTCTG	14099
7357	AAGACACG G UGGACUCU	5351	AGAGTCCA GGCTAGCTACAACGA CGTGTCTT	14100
7353	CACGGUGG A CUCUGUCA	5352	TGACAGAG GGCTAGCTACAACGA CCACCGTG	14101
7348	UGGACUCU G UCAGAACA	5353	TGTTCTGA GGCTAGCTACAACGA AGAGTCCA	14102
7342	CUGUCAGA A CAACCGUC	5354	GACGGTTG GGCTAGCTACAACGA TCTGACAG	14103
7339	UCAGAACA A CCGUCCUC	5355	GAGGACGG GGCTAGCTACAACGA TGTTCTGA	14104
7336	GAACAACC G UCCUCUUC	5356	GAAGAGGA GGCTAGCTACAACGA GGTTGTTC	14105
7323	CUUCCUCC G UGGAGGUG	5357	CACCTCCA GGCTAGCTACAACGA GGAGGAAG	14106
7317	CCGUGGAG G UGGUAUUG	5358	CAATACCA GGCTAGCTACAACGA CTCCACGG	14107
7314	UGGAGGUG G UAUUGGAG	5359	CTCCAATA GGCTAGCTACAACGA CACCTCCA	14108
7312	GAGGUGGU A UUGGAGGG	5360	CCCTCCAA GGCTAGCTACAACGA ACCACCTC	14109
7303	UUGGAGGG G CCUUGGCA	5361	TGCCAAGG GGCTAGCTACAACGA CCCTCCAA	14110
7297	GGGCCUUG G CAGGUGGC	5362	GCCACCTG GGCTAGCTACAACGA CAAGGCCC	14111
7293	CUUGGCAG G UGGCAAUG	5363	CATTGCCA GGCTAGCTACAACGA CTGCCAAG	14112
7290	GGCAGGUG G CAAUGGGC	5364	GCCCATTG GGCTAGCTACAACGA CACCTGCC	14113
7287	AGGUGGCA A UGGGCACC	5365	GGTGCCCA GGCTAGCTACAACGA TGCCACCT	14114
7283	GGCAAUGG G CACCCGUG	5366	CACGGGTG GGCTAGCTACAACGA CCATTGCC	14115
7281	CAAUGGGC A CCCGUGUA	5367	TACACGGG GGCTAGCTACAACGA GCCCATTG	14116
7277	GGGCACCC G UGUACCAC	5368	GTGGTACA GGCTAGCTACAACGA GCCCATTG	
7275	GCACCCGU G UACCACCG	5369		14117
12/3	GUACUGO G DACCACUG	5565	CGGTGGTA GGCTAGCTACAACGA ACGGGTGC	14118

	200001011 2 002 00002	50.00	TORGOTTO COMPAGNACIA ACA COCCO	14110
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7270	CGUGUACC A CCGGAGGG	5371	CCCTCCGG GGCTAGCTACAACGA GGTACACG	14120
7261	CCGGAGGG A CGUAGUCU	5372	AGACTACG GGCTAGCTACAACGA CCCTCCGG	14121
7259	GGAGGGAC G UAGUCUGG	5373	CCAGACTA GGCTAGCTACAACGA GTCCCTCC	14122
7256	GGGACGUA G UCUGGGUC	5374	GACCCAGA GGCTAGCTACAACGA TACGTCCC	14123
7250	UAGUCUGG G UCUUUCCA	5375	TGGAAAGA GGCTAGCTACAACGA CCAGACTA	14124
7239	UUUCCAGG G CUCUAGUA	5376	TACTAGAG GGCTAGCTACAACGA CCTGGAAA	14125
7233	GGGCUCUA G UAGUGGAG	5377	CTCCACTA GGCTAGCTACAACGA TAGAGCCC	14126
7230	CUCUAGUA G UGGAGGGU	5378	ACCCTCCA GGCTAGCTACAACGA TACTAGAG	14127
7223	AGUGGAGG G UUGUAAUC	5379	GATTACAA GGCTAGCTACAACGA CCTCCACT	14128
7220	GGAGGGUU G UAAUCCGG	5380	CCGGATTA GGCTAGCTACAACGA AACCCTCC	14129
7217	GGGUUGUA A UCCGGGCG	5381	CGCCCGGA GGCTAGCTACAACGA TACAACCC	14130
7211	UAAUCCGG G CGUGCCCA	5382	TGGGCACG GGCTAGCTACAACGA CCGGATTA	14131
7209	AUCCGGGC G UGCCCAUA	5383	TATGGGCA GGCTAGCTACAACGA GCCCGGAT	14132
7207	CCGGGCGU G CCCAUAUG	5384	CATATGGG GGCTAGCTACAACGA ACGCCCGG	14133
7203	GCGUGCCC A UAUGGGUA	5385	TACCCATA GGCTAGCTACAACGA GGGCACGC	14134
7201	GUGCCCAU A UGGGUAAC	5386	GTTACCCA GGCTAGCTACAACGA ATGGGCAC	14135
7197	CCAUAUGG G UAACGCUG	5387	CAGCGTTA GGCTAGCTACAACGA CCATATGG	14136
7194	UAUGGGUA A CGCUGAAG	5388	CTTCAGCG GGCTAGCTACAACGA TACCCATA	14137
7192	UGGGUAAC G CUGAAGGA	5389	TCCTTCAG GGCTAGCTACAACGA GTTACCCA	14138
7182	UGAAGGAA A CUUCUUGG	5390	CCAAGAAG GGCTAGCTACAACGA TTCCTTCA	14139
7173	CUUCUUGG A UUUCCGCA	5391	TGCGGAAA GGCTAGCTACAACGA CCAAGAAG	14140
7167	GGAUUUCC G CAGGAUCU	5392	AGATCCTG GGCTAGCTACAACGA GGAAATCC	14141
7162	UCCGCAGG A UCUCCGCC	5393	GGCGGAGA GGCTAGCTACAACGA CCTGCGGA	14142
7156	GGAUCUCC G CCGGAAUG	5394	CATTCCGG GGCTAGCTACAACGA GGAGATCC	14143
7150	CCGCCGGA A UGGACACC	5395	GGTGTCCA GGCTAGCTACAACGA TCCGGCGG	14144
7146	CGGAAUGG A CACCUCUC	5396	GAGAGGTG GGCTAGCTACAACGA CCATTCCG	14145
7144	GAAUGGAC A CCUCUCUC	5397	GAGAGAGG GGCTAGCTACAACGA GTCCATTC	14146
7133	UCUCUCUC A UCCUCCUC	5398	GAGGAGGA GGCTAGCTACAACGA GAGAGAGA	14147
7123	CCUCCUCC G CUCGAAGC	5399	GCTTCGAG GGCTAGCTACAACGA GGAGGAGG	14148
7116	CGCUCGAA G CGGGUCAA	5400	TTGACCCG GGCTAGCTACAACGA TTCGAGCG	14149
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7103	UCAAAAGA G UCCAGGGU	5402	ACCCTGGA GGCTAGCTACAACGA TCTTTTGA	14151
7096	AGUCCAGG G UAACUACC	5403	GGTAGTTA GGCTAGCTACAACGA CCTGGACT	14152
7093	CCAGGGUA A CUACCUUA	5404	TAAGGTAG GGCTAGCTACAACGA TACCCTGG	14153
7090	GGGUAACU A CCUUAUUC	5405	GAATAAGG GGCTAGCTACAACGA AGTTACCC	14154
7085	ACUACCUU A UUCUCUGA	5406	TCAGAGAA GGCTAGCTACAACGA AAGGTAGT	14155
7077	AUUCUCUG A CUCCACGC	5407	GCGTGGAG GGCTAGCTACAACGA CAGAGAAT	14156
7072	CUGACUCC A CGCGAGUG	5408	CACTCGCG GGCTAGCTACAACGA GGAGTCAG	14157
7070	GACUCCAC G CGAGUGAU			
7066	CCACGCGA G UGAUGUUA	5409 5410	ATCACTCG GGCTAGCTACAACGA GTGGAGTC TAACATCA GGCTAGCTACAACGA TCGCGTGG	14158 14159
7063	CGCGAGUG A UGUUACCG	5411	CGGTAACA GGCTAGCTACAACGA CACTCGCG	
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7058	GUGAUGUU A CCGCCCAU	5413	ATGGGCGG GGCTAGCTACAACGA ATCACTCG	14161
7055	AUGUUACC G CCCAUCUC	5414	GAGATGGG GGCTAGCTACAACGA AACATCAC GAGATGGG GGCTAGCTACAACGA GGTAACAT	14162
7051	UACCGCCC A UCUCCUGC	5415		14163
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7041	CUCCUGCC G CCACAGGA	5416	TGTGGCGG GGCTAGCTAGACGA AGGAGATG	14165
7038		5417	TCCTGTGG GGCTAGCTAGAACGA GGCAGGAG	14166
7038	CUGCCGCC A CAGGAGGU CACAGGAG G UUGGCCUC	5418	ACCTCCTG GGCTAGCTACAACGA GGCGGCAG	14167
7027	 	5419	GAGGCCAA GGCTAGCTACAACGA CTCCTGTG	14168
	GGAGGUUG G CCUCGAUG	5420	CATCGAGG GGCTAGCTACAACGA CAACCTCC	14169
7021	UGGCCUCG A UGAGGUCA	5421	TGACCTCA GGCTAGCTACAACGA CGAGGCCA	14170
7016	UCGAUGAG G UCAAAGUC	5422	GACTTTGA GGCTAGCTACAACGA CTCATCGA	14171
7010	AGGUCAAA G UCUGGGGA	5423	TCCCCAGA GGCTAGCTACAACGA TTTGACCT	14172
7001	UCUGGGGA G UCAUAUUG	5424	CAATATGA GGCTAGCTACAACGA TCCCCAGA	14173
6998	GGGGAGUC A UAUUGGGU	5425	ACCCAATA GGCTAGCTACAACGA GACTCCCC	14174

6996	GGAGUCAU A UUGGGUAA	5426	TTACCCAA GGCTAGCTACAACGA ATGACTCC	14175
6991	CAUAUUGG G UAAUGUAU	5427	ATACATTA GGCTAGCTACAACGA CCAATATG	14176
6988	AUUGGGUA A UGUAUGUC	5428	GACATACA GGCTAGCTACAACGA TACCCAAT	14177
6986	UGGGUAAU G UAUGUCGC	5429	GCGACATA GGCTAGCTACAACGA ATTACCCA	14178
6984	GGUAAUGU A UGUCGCCU	5430	AGGCGACA GGCTAGCTACAACGA ACATTACC	14179
6982	UAAUGUAU G UCGCCUUC	5431	GAAGGCGA GGCTAGCTACAACGA ATACATTA	14180
6979	UGUAUGUC G CCUUCGAA	5432	TTCGAAGG GGCTAGCTACAACGA GACATACA	14181
6966	CGAAGAAG G CGCAGACA	5433	TGTCTGCG GGCTAGCTACAACGA CTTCTTCG	14182
6964	AAGAAGGC G CAGACAGC	5434	GCTGTCTG GGCTAGCTACAACGA GCCTTCTT	14183
6960	AGGCGCAG A CAGCUGGC	5435	GCCAGCTG GGCTAGCTACAACGA CTGCGCCT	14184
6957	CGCAGACA G CUGGCUAG	5436	CTAGCCAG GGCTAGCTACAACGA TGTCTGCG	14185
6953	GACAGCUG G CUAGCUGA	5437	TCAGCTAG GGCTAGCTACAACGA CAGCTGTC	14186
6949	GCUGGCUA G CUGAGGAG	5438	CTCCTCAG GGCTAGCTACAACGA TAGCCAGC	14187
6941	GCUGAGGA G CUGGCCAA	5439	TTGGCCAG GGCTAGCTACAACGA TCCTCAGC	14188
6937	AGGAGCUG G CCAAGGAG	5440	CTCCTTGG GGCTAGCTACAACGA CAGCTCCT	14189
6921	GGGGGAG A CCCCCUGG	5441	CCAGGGG GGCTAGCTACAACGA CTCCCCCC	14190
6913	ACCCCCUG G CCAGCCUA	5442	TAGGCTGG GGCTAGCTACAACGA CAGGGGGT	14191
6909	CCUGGCCA G CCUACGCU	5443	AGCGTAGG GGCTAGCTACAACGA TGGCCAGG	14192
6905	GCCAGCCU A CGCUUAGC	5444	GCTAAGCG GGCTAGCTACAACGA AGGCTGGC	14193
6903	CAGCCUAC G CUUAGCCG	5445	CGGCTAAG GGCTAGCTACAACGA GTAGGCTG	14194
6898	UACGCUUA G CCGUCUCU	5446	AGAGACGG GGCTAGCTACAACGA TAAGCGTA	14195
6895	GCUUAGCC G UCUCUCCU	5447	AGGAGAGA GGCTAGCTACAACGA GGCTAAGC	14196
6886	UCUCUCCU G UAAUGUGG	5448	CCACATTA GGCTAGCTACAACGA AGGAGAGA	14197
6883	CUCCUGUA A UGUGGGAG	5449	CTCCCACA GGCTAGCTACAACGA TACAGGAG	14198
6881	CCUGUAAU G UGGGAGGG	5450	CCCTCCCA GGCTAGCTACAACGA ATTACAGG	
6872	UGGGAGG G UCGGUGAG	5451	CTCACCGA GGCTAGCTACAACGA CCCTCCCA	14199
6868	AGGGGUCG G UGAGCAUG	5452		14200
6864	GUCGGUGA G CAUGGACG	 	CATGCTCA GGCTAGCTACAACGA CGACCCCT	14201
6862	CGGUGAGC A UGGACGUG	5453	CGTCCATG GGCTAGCTACAACGA TCACCGAC	14202
6858	GAGCAUGG A CGUGAGCA	5454 5455	CACGTCCA GGCTAGCTACAACGA GCTCACCG	14203
6856	GCAUGGAC G UGAGCACU	5456	TGCTCACG GGCTAGCTACAACGA CCATGCTC	14204
6852	GGACGUGA G CACUGCUA	 	AGTGCTCA GGCTAGCTACAACGA GTCCATGC	14205
6850	ACGUGAGC A CUGCUACA	5457	TAGCAGTG GGCTAGCTACAACGA TCACGTCC	14206
6847	UGAGCACU G CUACAUCC	5458	TGTAGCAG GGCTAGCTACAACGA GCTCACGT	14207
6844		5459	GGATGTAG GGCTAGCTACAACGA AGTGCTCA	14208
ļ	GCACUGCU A CAUCCGGU ACUGCUAC A UCCGGUUC	5460	ACCGGATG GGCTAGCTACAACGA AGCAGTGC	14209
6842		5461	GAACCGGA GGCTAGCTACAACGA GTAGCAGT	14210
6837	UACAUCCG G UUCGGGCU	5462	AGCCCGAA GGCTAGCTACAACGA CGGATGTA	14211
6831	CGGUUCGG G CUCGCAUG	5463	CATGCGAG GGCTAGCTACAACGA CCGAACCG	14212
6827	UCGGGCUC G CAUGGGAG	5464	CTCCCATG GGCTAGCTACAACGA GAGCCCGA	14213
6825	GGGCUCGC A UGGGAGCU	5465	AGCTCCCA GGCTAGCTACAACGA GCGAGCCC	14214
6819	GCAUGGGA G CUGUGACC	5466	GGTCACAG GGCTAGCTACAACGA TCCCATGC	14215
6816	UGGGAGCU G UGACCCAA	5467	TTGGGTCA GGCTAGCTACAACGA AGCTCCCA	14216
6813	GAGCUGUG A CCCAACCA	5468	TGGTTGGG GGCTACCTACAACGA CACAGCTC	14217
6808	GUGACCCA A CCAGGUAU	5469	ATACCTGG GGCTAGCTACAACGA TGGGTCAC	14218
6803	CCAACCAG G UAUUGGUU	5470	AACCAATA GGCTAGCTACAACGA CTGGTTGG	14219
6801	AACCAGGU A UUGGUUGA	5471	TCAACCAA GGCTAGCTACAACGA ACCTGGTT	14220
6797	AGGUAUUG G UUGAGCCC	5472	GGGCTCAA GGCTAGCTACAACGA CAATACCT	14221
6792	UUGGUUGA G CCCGACCU	5473	AGGTCGGG GGCTAGCTACAACGA TCAACCAA	14222
6787	UGAGCCCG A CCUGGAAU	5474	ATTCCAGG GGCTAGCTACAACGA CGGGCTCA	14223
6780	GACCUGGA A UGUGACCU	5475	AGGTCACA GGCTAGCTACAACGA TCCAGGTC	14224
6778	CCUGGAAU G UGACCUCC	5476	GGAGGTCA GGCTAGCTACAACGA ATTCCAGG	14225
6775	GGAAUGUG A CCUCCUCC	5477	GGAGGAGG GGCTAGCTACAACGA CACATTCC	14226
6765	CUCCUCCC G UAGGAGAG	5478	CTCTCCTA GGCTAGCTACAACGA GGGAGGAG	14227
6756	UAGGAGAG G UCCACACG	5479	CGTGTGGA GGCTAGCTACAACGA CTCTCCTA	14228
6752	AGAGGUCC A CACGCCGG	5480	CCGGCGTG GGCTAGCTACAACGA GGACCTCT	14229
6750	AGGUCCAC A CGCCGGAG	5481	CTCCGGCG GGCTAGCTACAACGA GTGGACCT	14230

6748	GUCCACAC G CCGGAGCG	5482	CGCTCCGG GGCTAGCTACAACGA GTGTGGAC	14231
6742	ACGCCGGA G CGUUUCUG	5483	CAGAAACG GGCTAGCTACAACGA TCCGGCGT	14232
6740	GCCGGAGC G UUUCUGUG	5484	CACAGAAA GGCTAGCTACAACGA GCTCCGGC	14233
6734	GCGUUUCU G UGCAGGCG	5485	CGCCTGCA GGCTAGCTACAACGA AGAAACGC	14234
6732	GUUUCUGU G CAGGCGUA	5486	TACGCCTG GGCTAGCTACAACGA ACAGAAAC	14235
6728	CUGUGCAG G CGUACCCC	5487	GGGGTACG GGCTAGCTACAACGA CTGCACAG	14236
6726	GUGCAGGC G UACCCCAU	5488	ATGGGGTA GGCTAGCTACAACGA GCCTGCAC	14237
6724	GCAGGCGU A CCCCAUCC	5489	GGATGGGG GGCTAGCTACAACGA ACGCCTGC	14238
6719	CGUACCCC A UCCACUUC	5490	GAAGTGGA GGCTAGCTACAACGA GGGGTACG	14239
6715	CCCCAUCC A CUUCCGUG	5491	CACGGAAG GGCTAGCTACAACGA GGATGGGG	14240
6709	CCACUUCC G UGAAGAAU	5492	ATTCTTCA GGCTAGCTACAACGA GGAAGTGG	14241
6702	CGUGAAGA A UUCGGGGG	5493	CCCCGAA GGCTAGCTACAACGA TCTTCACG	14242
6693	UUCGGGGG G CGGAACCU	5494	AGGTTCCG GGCTAGCTACAACGA CCCCCGAA	14243
6688	GGGGCGGA A CCUGGCAC	5495	GTGCCAGG GGCTAGCTACAACGA TCCGCCCC	14244
6683	GGAACCUG G CACGGGCA	5496	TGCCCGTG GGCTAGCTACAACGA CAGGTTCC	14245
6681	AACCUGGC A CGGGCAUU	5497	AATGCCCG GGCTAGCTACAACGA GCCAGGTT	14245
6677	UGGCACGG G CAUUUUAC	5498	GTAAAATG GGCTAGCTACAACGA CCGTGCCA	
6675	GCACGGC A UUUUACGU	5498		14247
6670	GCAUUUU A CGUUGUCA		ACGTAAAA GGCTAGCTACAACGA GCCCGTGC	14248
6668	CAUJUUAC G UUGUCAGU	5500 5501	TGACAACG GGCTAGCTACAACGA AAAATGCC	14249
			ACTGACAA GGCTAGCTACAACGA GTAAAATG	14250
6665	UUUACGUU G UCAGUGGU	5502	ACCACTGA GGCTAGCTACAACGA AACGTAAA	14251
6661	CGUUGUCA G UGGUCAUG	5503	CATGACCA GGCTAGCTACAACGA TGACAACG	14252
6658	UGUCAGUG G UCAUGCCC	5504	GGGCATGA GGCTAGCTACAACGA CACTGACA	14253
6655	CAGUGGUC A UGCCCGUC	5505	GACGGCA GGCTAGCTACAACGA GACCACTG	14254
6653	GUGGUCAU G CCCGUCAC	5506	GTGACGGG GGCTAGCTACAACGA ATGACCAC	14255
6649	UCAUGCCC G UCACGUAG	5507	CTACGTGA GGCTAGCTACAACGA GGGCATGA	14256
6646	UGCCCGUC A CGUAGUGG	5508	CCACTACG GGCTAGCTACAACGA GACGGGCA	14257
6644	CCCGUCAC G UAGUGGAA	5509	TTCCACTA GGCTAGCTACAACGA GTGACGGG	14258
6641	GUCACGUA G UGGAAAUC	5510	GATTTCCA GGCTAGCTACAACGA TACGTGAC	14259
6635	UAGUGGAA A UCCCCCAC	5511	GTGGGGGA GGCTAGCTACAACGA TTCCACTA	14260
6628	AAUCCCCC A CCCGCGUA	5512	TACGCGGG GGCTAGCTACAACGA GGGGGATT	14261
6624	CCCCACCC G CGUAACCU	5513	AGGTTACG GGCTAGCTACAACGA GGGTGGGG	14262
6622	CCACCCGC G UAACCUCC	5514	GGAGGTTA GGCTAGCTACAACGA GCGGGTGG	14263
6619	CCCGCGUA A CCUCCACG	5515	CGTGGAGG GGCTAGCTACAACGA TACGCGGG	14264
6613	UAACCUCC A CGUACUCC	5516	GGAGTACG GGCTAGCTACAACGA GGAGGTTA	14265
6611	ACCUCCAC G UACUCCUC	5517	GAGGAGTA GGCTAGCTACAACGA GTGGAGGT	14266
6609	CUCCACGU A CUCCUCAG	5518	CTGAGGAG GGCTAGCTACAACGA ACGTGGAG	14267
6601	ACUCCUCA G CGGCCACC	5519	GGTGGCCG GGCTAGCTACAACGA TGAGGAGT	14268
6598	CCUCAGCG G CCACCCGC	5520	GCGGGTGG GGCTAGCTACAACGA CGCTGAGG	14269
6595	CAGCGGCC A CCCGCCAU	5521	ATGGCGGG GGCTAGCTACAACGA GGCCGCTG	14270
6591	GGCCACCC G CCAUAGCG	5522	CGCTATGG GGCTAGCTACAACGA GGCTGGCC	14271
6588	CACCCGCC A UAGCGCCC	5523	GGGCGCTA GGCTAGCTACAACGA GGCGGGTG	14272
6585	CCGCCAUA G CGCCCUAG	5524	CTAGGGCG GGCTAGCTACAACGA TATGGCGG	14273
6583	GCCAUAGC G CCCUAGAA	5525	TTCTAGGG GGCTAGCTACAACGA GCTATGGC	14274
6575	GCCCUAGA A UAGUUUGG	5526	CCAAACTA GGCTAGCTACAACGA TCTAGGGC	14275
6572	CUAGAAUA G UUUGGCGC	5527	GCGCCAAA GGCTAGCTACAACGA TATTCTAG	14276
6567	AUAGUUUG G CGCCGGGG	5528	CCCCGCG GGCTAGCTACAACGA CAAACTAT	14277
6565	AGUUUGGC G CCGGGGAG	5529	CTCCCGG GGCTAGCTACAACGA GCCAAACT	14278
6555	CGGGGAGG G UGUGCAGG	5530	CCTGCACA GGCTAGCTACAACGA CCTCCCCG	14279
6553	GGGAGGGU G UGCAGGGG	5531	CCCCTGCA GGCTAGCTACAACGA ACCCTCCC	14280
6551	GAGGGUGU G CAGGGGCC	5532	GGCCCTG GGCTAGCTACAACGA ACCCCTC	14280
6545	GUGCAGGG G CCCGUGGU	5532		
6541	AGGGGCCC G UGGUGUAU		ACCACGGG GGCTAGCTACAACGA CCCTGCAC ATACACCA GGCTAGCTACAACGA GGGCCCCT	14282
6538	GGCCCGUG G UGUAUGCG	5534 5535		14283
		5535	CGCATACA GGCTAGCTACAACGA CACGGGCC	14284
6536 6534	CCCGUGGU G UAUGCGUU CGUGGUGU A UGCGUUGA	5536 5537	AACGCATA GGCTAGCTACAACGA ACCACGGG TCAACGCA GGCTAGCTACAACGA ACACCACG	14285 14286

6531 UGGUIGHAN G GGUIGANUS 5538 CATCARCO GGCTRAGTACARCAGA SETRACAC 14287 6530 GUIGHANG G GUIGANUS 5539 CCATCARA GGCTRACTACACAGA CRACGAR THE COLOR			·		
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6517					
6512 ANGUNCE A UGCACGU 5543 ACCTIGGCA GGCTAGCTACACGA ATTCCCCA 14291 6510 UGUUCCAU G COACGUGU 5544 ACCTIGGCA GGCTAGCTACACGA GGAACAT 14292 6510 UGUUCCAU G COACGUGU 5544 ACCACGTGG GGCTAGCTACACGA GGAACAT 14293 6507 UCCAUGCC A CGUGUUCC 5545 GCAACACG GGCTAGCTACACGA GTGGACTA 14296 6507 CAUGCCAC G UGUUCCA 5546 TAGCACAC GGCTAGCTACACACGA GTGGACTA 14296 6508 CACCACGU G UGUCCACA 5547 TOTAGCAA GGCTAGCTACACACGA ACGTGCACAC 14296 6500 CACGUGUU G CUACAGGU 5548 ACCACTGTGACACACA ACGTGCACAC 14296 6497 GUGUUCCU A CAGGUCU 5549 ANGACCTG GGCTAGCTACACACGA ACACTACACA 14298 6498 UGCUACAG G UCUUAGGC 5559 ANGACCTG GGCTAGCTACACACGA ACCACCA 14296 6498 UGCUACAG G UCUUAGGC 5559 GCCTAAGA GGCTAGCTACACACGA CTRATAGCA 14298 6491 UAGGCCCG A CGAUCCU 5552 GAGGATCG GGCTAGCTACACACGA CTAGACAC 14296 6492 UAGGCACCA GCAUCCU 5552 GAGGATCG GGCTAGCTACACACGA CTAGACAC 14300 6478 GCCCACGA UCUCAUG 5553 CATCAGGA GGCTAGCTACACACGA CGTGCGAC 14301 6478 GCCCACGA UCUCAUG 5554 CAGGTTCCA GGCTAGCTACACACGA CGTGCGAC 14302 6467 CUCAUGGA A CCGUUCUU 5555 ANGACCG GGCTAGCTACACACGA CGTGCGAC 14302 6467 CUCAUGGA A CCGUUCUU 5555 ANGACCG GGCTAGCTACACACGA CGTGCGAC 14302 6467 CUCAUGGA A CCGUUCUU 5555 ANGACCG GGCTAGCTACACACGA CGTGCGAC 14303 6467 CUUCUAGA A UGGAACCG 5554 CGGTTCCA GGCTAGCTACACACGA CGTGCGAC 14304 6464 AUGGAACC G UUCUUGGAC 5555 ANGACCG GGCTAGCTACACACGA CGTGCGAC 14304 6465 UUCUGGAC A UGCCAGU 5558 ANGACCG GGCTAGCTACACACGA CAGGAACGA 14304 6466 CUUCUGGAC A UGCCAGU 5559 TCACTGGA GGCTAGCTACACACGA CAGAGATCA 14304 6467 CUUCUGGAC A UGCCAGU 5559 TCACTGGA GGCTAGCTACACACGA CAGAGATCA 14304 6468 GUUCUGGAC A UGCCAGU 5551 AGGCACG GGCTAGCTACACACGA CAGAGATCA 14304 6469 CUUCUGGAC A UGCCAGU 5551 AGGCACGA GGCTAGCTACACACGA CAGAGATCA 14304 6461 AUGGACU G CUCCGCA 5560 GCAGACCTA GGCTAGCTACACACGA CAGAGATCA					
6512 ANUGUICC A UGCCACGU 5543 ACGTOGG GGCTAGCTACACGA GGAACATT 14292	6519	GAUGGGGA A UGUUCCAU	<u> </u>		14290
STOT UGUUCAQU G CARGUGUU S544 ACACOTEG GGCTAGCTACAACGA ATGGARCA 14293	6517		5542	GCATGGAA GGCTAGCTACAACGA ATTCCCCA	14291
	6512	AAUGUUCC A UGCCACGU	5543	ACGTGGCA GGCTAGCTACAACGA GGAACATT	14292
6505 CAUGCCAC G UGUUGCUA 5546 TAGCAACA GGCTAGCTACAACGA GTGGCATG 14295 6500 CACGUGUU G CUACAGGUU 5547 TGTAGCAA GGCTAGCTACAACGA ACCAGTGGCA 14295 6500 CACGUGUU G CUACAGGUU 5549 AAGACCTA GGCTAGCTACAACGA AACAGGTG 14297 6497 GUGUURGU A CAGGUCUU 5549 AAGACCTA GGCTAGCTACAACGA AACAGGT 14298 6498 UGUCACAG G UCUURGGC 5550 GGCTAGCTACAACGA CACACACA 14299 6486 GGUCUUAG G CCCGACGA 5551 TCGTCGGG GGCTAGCTACAACGA CTGTAGCA 14299 6481 UAGGCCCG A GGAUCCUC 5552 GAGGATCG GGCTAGCTACAACGA CTGTAGCC 14300 6481 UAGGCCCG A GADUCCUC 5552 GAGGATCG GGCTAGCTACAACGA CTGTAGCC 14300 6472 GCCCGACGA UCCUCAUG 5553 ACTAGAGGA GGCTAGCTACAACGA CTCGGCC 14302 6473 GCCCGACGA UCCUCAUG 5553 ACTAGAGGA GGCTAGCTACAACGA CTCGGGC 14302 6474 GCCCGACGA UCCUCAUG 5555 AAGACCG GGCTAGCTACAACGA CTCCGGC 14302 6477 CGCCGACGA UCCUCAUG 5555 AAGACCG GGCTAGCTACAACGA CTCCAGGG 14304 6478 GCCCGACGA UCCUCAUG 5555 AAGACCG GGCTAGCTACAACGA CTCCAGGG 14304 6479 GCUUCUUGA ACGUUCUU 5555 AAGAACG GGCTAGCTACAACGA CTCCAGGG 14304 6470 CUCUCUUGA CUCUCAUG 5555 ATCAGAGGA GGCTAGCTACAACGA CTCCAGGA 14304 6471 CUCUUGACA UGUCCAGU 5555 TCGACGAA GGCTAGCTACAACGA GGCTAGCTACAACGA 6475 CUUCUUGAC UUCCAGGGA 5559 TCACTGGA GGCTAGCTACAACGA GGCTAGCTACAACGA 6476 CUUCUGACA UCCUCCCCU 5550 GCAGATC GGCTAGCTACAACGA CACTGACC 6477 AUGUCACA UGUCCAGU 5551 ACCCCAGG GGCTAGCTACAACGA CACTGACC 6478 CUCCAGGUA UCCCGCCU 5552 GCGAGAGC GGCTAGCTACAACGA CACTGACC 6479 UGAUCUUG CGCUCCCG 5552 GCGAGAGC GGCTAGCTACAACGA CACTGACC 6470 AUGUCAGCA UCCCGCCU 5551 ACCCCAGG GGCTAGCTACAACGA CACTGCC 6470 AUGUCAGCC CAUGGGCA 5556 CACCCTG GGCTAGCTACAACGA CACTGCC 6471 UGCCCCCC AUGGGCA 5556 CACCCCTG GGCTAGCTACAACGA CACTGCC 6471 GGCAGGUG UCCCGCC 5557 GCGACACC GCGTAGCTACAACGA CACTGCC 6472 CCCCCCCC AUGGGCA 5556 CACCCTG GGCTAGCTACAACGA CACTGCC 6471 GGCAGGUG CAGGUGCC 555	6510	UGUUCCAU G CCACGUGU	5544	ACACGTGG GGCTAGCTACAACGA ATGGAACA	14293
	6507	UCCAUGCC A CGUGUUGC	5545	GCAACACG GGCTAGCTACAACGA GGCATGGA	14294
CACGUGUU G CUACAGGU S548 ACCTGTAG GGCTAGCTACAACGA AACACGTG 14297	6505	CAUGCCAC G UGUUGCUA	5546	TAGCAACA GGCTAGCTACAACGA GTGGCATG	14295
6497 GUGUUGGU A CAGGUCUU 5549 AAGACCTG GGCTAGCTACAACGA AGCAACAC 14298 6493 UGCUACAG G UCUNGGC 5550 GCCTAACA GGCTAGCTACAACGA CTGTAGCA 14299 6486 GGUCUNG G CCCGACCGA 5551 TCGTCGGG GGCTAGCTACAACGA CTGTAGCA 14299 6481 UAGGCCCG A CGAUCCUC 5552 GAGGATGG GGCTAGCTACAACGA CTGTAGCA 14301 6481 UAGGCCCG A UCCUCAUG 5553 CAGGATGG GGCTAGCTACAACGA CGGGCCTA 14301 6478 GCCCGACG A UCCUCAUG 5553 CATGAGGA GGCTAGCTACAACGA CGGGCCTA 14302 6477 CUCAUGGA A CCGUCUU 5555 AGAAACGA GGCTAGCTACAACGA CGGGCCTA 14302 6467 CUCAUGGA A CCGUCUU 5555 AGAAACGG GGCTAGCTACAACGA GAGGATCC 14302 6467 CUCAUGGA A CUCUCAUG 5555 AGAAACGG GGCTAGCTACAACGA GAGGATCC 14304 6464 AUGGAACC G UUCUUGAC 5555 AGAAACGG GGCTAGCTACAACGA CAGGATCCATCAG 14304 6465 TUCUUGAC A UGUCCCAU 5555 AGAAACGG GGCTAGCTACAACGA GAGAACC 14306 6455 UUCUUGAC A UGCACUGA 5555 TTGGACATG GGCTAGCTACAACGA CAGGAACC 14306 6456 CUUGACAU G UCCAGUGA 5559 TCACTGGA GGCTAGCTACAACGA GTCAAGAA 14307 6455 UUCUUGAC UCCAGUGA 5559 TCACTGGA GGCTAGCTACAACGA TCCAAGAA 14309 6446 AGUGUCCC G UGACUCCC 5560 GCAGATCA GGCTAGCTACAACGA TCGAACGA 14306 6441 AGUGAUCU G CGCUCCCC 5561 AGCCCACGA GGCTAGCTACAACGA TCGAACA 14309 6442 BUCUUGCG C CUCCCCC 5562 GCGGAGGG GGCTAGCTACAACGA GCAGTCACT 14311 6439 UGAUCUGC G CUCCCGAU 5563 ATGCGGAG GGCTAGCTACAACGA GCAGTCACT 14311 6431 UGAUCUG G CUCCGAUG 5564 TGCCCACTG GGCTAGCTACAACGA GCAGATCA 14312 6432 CGCUCCG C AUGGGCAG 5564 TGCCCACTG GGCTAGCTACACGA GAGACCA 14313 6432 CGCUCCG C AUGGGCAG 5564 TGCCCACTG GGCTAGCTACACGA GAGACCA 14313 6434 UGCCUCC G CAUGGGCA 5566 ACCACCTG GGCTAGCTACAACGA GCAGACCA 14313 6432 GGUCCGC A UGGGCAGG 5565 ACCACCTG GGCTAGCTACAACGA GCAGGACCA 14313 6434 UGCCUCC G CAUGGGCA 5566 ACCACCTG GGCTAGCTACAACGA GCAGGACCA 14313 6432 GGUCCGC A UGGGCAGG 5566 ACCACCTG GGCTAGCTACAACGA ACCACCA 14313 6434 UGCCUCC G CAUGGACC 5570 ACCACGA GGCTAGCTACAACGA GAGGCGC 14316 6428 AUGGCACG G UGGUUGC 5567 GCAAACCA GGCTAGCTACAACGA ACCACCA 14319 6410 UGCAUGAU A CCGCCUCC 5571 AGAGGGG GGCTAGCTACAACGA GGGAGCC 14316 6421 UUCCAUGAU A CCGCCCUC 5571 AGAGGGG GGCTAGCTACAACGA GCGGAGCC 14316 6421 AUGGCACG G UGAGACC 5570	6503	UGCCACGU G UUGCUACA	5547	TGTAGCAA GGCTAGCTACAACGA ACGTGGCA	14296
6493 UGCUNCAG G UCUUNAGC 5550 GCCTANGA GGCTAGCTACNACGA CTGTAGCA 14299 6486 GGUUUNAG G CCCGACCA 5551 TGGTCGGG GGCTAGCTACAACGA CTAAGACC 14300 6478 JAGGCCCG A CGAUCCUC 5552 GAGGATGG GGCTAGCTACAACGA CGGGCCTA 14301 6478 GCCCGACG A UCCUCAUG 5552 CATGAGGA GGCTAGCTACAACGA CGGGGCCTA 14302 6479 GCCCGACG A UCCUCAUG 5553 CATGAGGA GGCTAGCTACAACGA CGGCGCCTA 14302 6472 CGAUCCUC A UGGAACCG 5554 CGGTTCCA GGCTAGCTACAACGA CGTCGGCC 14302 6474 CUCAUGGA A CCGUUCUU 5555 AAGAACGA GGCTAGCTACAACGA GGCTATGGA 14304 6464 AUGGAACC G UUCUUGAC 55556 ARGAACGA GGCTAGCTACAACGA GTCCATGAG 14304 6464 AUGGAACC G UUCUUGAC 55557 TGGACATG GGCTAGCTACAACGA GGTTCCAT 14305 6457 CUGUUCUUG A CANGUCCA 55557 TGGACATG GGCTAGCTACAACGA CAAGAACC 14306 6458 UUCUUGAC A UGUCCAGU 5559 TCACTGGA GGCTAGCTACAACGA CAAGAAC 14306 6459 UUCUUGAC A UGUCCAGU 5559 TCACTGGA GGCTAGCTACAACGA TGCAACGA 14309 6448 CAUGUCCA G UGAUCUGC 5561 ACCCGCAG GGCTAGCTACAACGA TGCACAT 14309 6448 CAUGUCCA G UCCUCCCU 5561 ACCCGCAG GGCTAGCTACAACGA TGGACAT 14309 6449 UUCAGCCC C CUCCCCAU 5552 GCGGAGCG GGCTAGCTACAACGA AGATCAC 14310 6441 AGUGAUCU G CUCCCGCU 5561 ACCCGCAG GGCTAGCTACAACGA AGATCAC 14312 6434 UGCGCUCC G CAUGGGCA 5564 TGCCCATG GGCTAGCTACAACGA AGATCAC 14312 6434 UGCGCUCC G CAUGGGCA 5564 TGCCCCATG GGCTAGCTACAACGA GCGAGCC 14314 6432 GCCUCCGC A UGGGCAG 5565 CCTCCCCA GGCTAGCTACAACGA GCGAGCC 14314 6432 GCCUCCGC A UGGGCAG 5566 TGCCCACA GGCTAGCTACAACGA CAGGACCA 14312 6434 UGCGCUCC G CAUGGGCA 5567 TGCCCATG GGCTAGCTACAACGA CAGGACCA 14312 6436 UGCCUCCCC A UGGGCAG 5566 TGCCCACAGG GCCTAGCTACAACGA CACCTCC 14316 6437 UGCGUCC G CAUGGCCC 5567 GCAACCA GGCTAGCTACAACGA CACCTCC 14316 6438 CCCCCCGC A UGGGCAGC 5567 GCAACCA GGCTAGCTACAACGA CACCTCC 14316 6441 GGCAGGUG UCCCCCC 5567 GCAACCA GGCTAGCTACAACGA CACCTCC 14316 6442 AUGGCAG G UGCCCCC 5570 GCAAGCA GGCTAGCTACAACGA CACCTCC 14316 6441 UGCCUCCC G CAUGAUAC 5569 TATCATG GGCTAGCTACAACGA CACCTCC 14316 6441 UGCCUCCC G CAUGAUAC 5569 TATCATG GGCTAGCTACAACGA CACCTCC 14316 6441 UGCCUCCC G CAUGAUAC 5569 TATCATG GGCTAGCTACAACGA CACCTCC 14316 6410 UGCCUCCC G CAUGAUAC 5569 TATCAT	6500	CACGUGUU G CUACAGGU	5548	ACCTGTAG GGCTAGCTACAACGA AACACGTG	14297
6486 GGUCUUAG G CCCGACGA 5551 TCGTCGGG GGCTAGCTACAACGA CTAAGACC 14300 6481 UAGGCCCG A CGAUCCUC 5552 GAGGATCG GGCTAGCTACAACGA CGGGCCTA 14301 6478 GCCCGACG A UCCUCAUG 5553 CATGAGGA GGCTAGCTACAACGA GCGGCCTA 14301 6477 CGCACCCUC A UGGAACCG 5554 CATGAGGA GGCTAGCTACAACGA GCGGGCCTA 14303 6467 CUCAUGGA A CCGUUCUU 5555 AAGAACGA GGCTAGCTACAACGA GTCGGGC 14302 6467 CUCAUGGA A CCGUUCUU 5555 AAGAACGA GGCTAGCTACAACGA CACGACCA 14304 6467 CUCAUGGA A CCGUUCUU 5555 AAGAACGA GGCTAGCTACAACGA CACGACCA 14304 6467 CUCAUGGA A CCGUUCUU 5555 AGCACCA GGCTAGCTACAACGA CAAGAACCA 14306 6464 AUGGAACC G UUCUUGAC 5555 GTCAAGAA GGCTAGCTACAACGA CAAGAACG 14306 6455 UUCUUGAC A UGUCCAGU 5556 ACCACCAC GGCTAGCTACAACGA CAAGAACA 14307 6456 UUCUUGACAU G UCCAGUGA 5559 TCACTGGAC GGCTAGCTACAACGA GTCAAGAA 14307 6457 CGUUCUUG A UCUCGGC 5556 GCAGATCA GGCTAGCTACAACGA ATCTCAAG 14308 6448 CAUGUCCAG G UCAACUGA 5559 TCACTGGAC GGCTAGCTACAACGA ATCTCAAG 14309 6441 AGUGAUCC G UGAUCUCC 5561 ACCACCAC GGCTAGCTACAACGA ATCTCAAG 14309 6441 AGUGAUCC G CCCCCC 5562 GCGGAGCG GGCTAGCTACAACGA AGATCAC 14311 6442 UGCACUG G UCUCCCCC 5562 GCGGAGCG GGCTAGCTACAACGA AGATCAC 14311 6443 UGACCAUG A UCUGGGCU 5561 ACCACCAC GGCTAGCTACAACGA GCAGATCA 14312 6444 UGCCCUCC G CAUGGGCA 5564 TCCCCCAT GGCTAGCTACAACGA GCAGATCA 14312 6442 GCCCCCCC C AUGGGCA 5564 TCCCCCAT GGCTAGCTACAACGA GCAGATCA 14312 6442 GCCCCCCCC AUGGGCA 5564 TCCCCCAT GGCTAGCTACAACGA GCAGATCA 14312 6442 GCCCCCCC AUGGCCA 5565 ACCACCTG GGCTAGCTACAACGA GCAGCCCA 14313 6442 GCCCCCCCC AUGGCCA 5565 ACCACCTG GGCTAGCTACAACGA GCAGCCCA 14313 6442 GCCCCCCCC C AUGGCCA 5567 ACCACCTG GGCTAGCTACAACGA CACCCCCC 14316 6441 UGCCCCCC C AUGGCCA 5567 ACCACCTG GGCTAGCTACAACGA CACCCCCC 14316 6441 UGCCCCCC C AUGGCCA 5567 ACCACCTG GGCTAGCTACAACGA CACCCCCC 14316 6441 UGCCAUGAU C 5567 ACCACCTG GGCTAGCTACAACGA CACCCCCC 14316 6441 UGCCAUGAU C CAUGAUACC 5567 ACCACCTG GGCTAGCTACAACGA CACCCCCC 14316 6441 UGCAUGAU C CAUGAUACC 5567 ACCACCTG GGCTAGCTACAACGA CACCCCCC 14316 6441 UGCAUGAU A CCUCCCC 5572 ACGAGGGG GGCTAGCTACAACGA CACCCCCC 14316 6441 UGCAUGAU A CCUCCCC 5572 ACG	6497	GUGUUGCU A CAGGUCUU	5549	AAGACCTG GGCTAGCTACAACGA AGCAACAC	14298
6481 UAGGCCCG A CGAUCCUC 5552 GAGGATCG GGCTAGCTACACGA CGGGCCTA 13301 6478 GCCCGACG A UCCUCAUG 5553 ACAGAGA GGCTAGCTACAACGA CGCGGCCC 14302 6467 CGAUCCUC A UGGACCG 5554 CGGTTCCC GGCTAGCTACAACGA GAGGATCG 14302 6467 CUCAUGGA A CCGUUCUU 5555 AAGAACGG GGCTAGCTACAACGA GAGGATCG 14302 6467 CUCAUGGA A CCGUUCUU 5555 AAGAACGG GGCTAGCTACAACGA GAGGATCG 14304 6464 AUGGAACC G UUCUUGAC 5555 ATGAAGAA GGCTAGCTACAACGA GTTCCAT 14305 6465 CUCUUGAC A CAUGUCCA 5557 TGGACATG GGCTAGCTACAACGA GTTCCAT 14306 6455 UUCUUGAC A UGUCCAGU 5557 TGGACATG GGCTAGCTACAACGA CAGAACG 14306 6455 UUCUUGAC A UGUCCAGU 5558 ACTGGACA GGCTAGCTACAACGA ATGTCAAG 14306 6453 CUUGACAU G UCCAGUGA 5559 TCACTGGA GGCTAGCTACAACGA ATGTCAAG 14306 6454 CAUGUCCA G UGAUCUGC 5560 GCAGATCA GGCTAGCTACAACGA ATGTCAAG 14309 6445 GUCCAGUG A UCUCCGCC 5561 AGGGCAGA GGCTAGCTACAACGA AGATCAT 14309 6446 GUCCAGUG A UCUCCGCC 5562 GCGGAGCG GGCTAGCTACAACGA GAGTCACT 14310 6441 AGUGAUCU G CGCUCCGC 5563 ATGCGGAG GGCTAGCTACAACGA GAGTCACT 14312 6431 UGCGCUCC G CAUGGCCA 5563 ATGCGGAG GGCTAGCTACAACGA GAGTCACT 14312 6432 CGCUCCG C AUGGGCA 5564 TGCCCATG GGCTAGCTACAACGA GAGACACT 14312 6432 CGCUCCG A UGGGCAG 5565 CCTGCCCA GGCTAGCTACAACGA GAGACCA 14313 6432 CGCUCCG C AUGGGCA 5566 ACCACCTG GGCTAGCTACAACGA GAGACCA 14316 6423 CGCUCCG C AUGGGCA 5566 ACCACCTG GGCTAGCTACAACGA GCGAGCCA 14316 6424 AUGGGCAG G UGGUUGC 5566 ACCACCTG GGCTAGCTACAACGA GCGAGCCA 14316 6425 CCGCAUGG C CAUGGCCA 5564 TGCCCATG GGCTAGCTACAACGA GCCATCCGG 14316 6426 CCGCAUGG C CAUGACGC 5566 ACCACCTG GGCTAGCTACAACGA CATCCCAT 14316 6421 GGCAGGUU G UUUGCAUG 5568 ACCACCTG GGCTAGCTACAACGA CATCCCAT 14316 6421 GGCAGGUU G UUUGCAUG 5568 CATGCAACA GGCTAGCTACAACGA CATCCCAT 14316 6421 UUUGCAUG A UGAUCAC 5569 CTACCTACA GGCTAGCTACAACGA CATCCCCAT 14316 6421 UUUGCAUG A UACCGU 5570 CGGTAGCTACAACGA CATCCCAC 14317 6421 UUUGCAUG A UACCGU 5571 AGACGGTA GGCTAGCTACAACGA CATCGCC 14316 6411 UUUGCAUG A UACCGU 5571 AGACGGTA GGCTAGCTACAACGA CATCGCA 14323 6407 AUGAUGAC A UGAUCAC 5574 GGGGGGGG GGCTAGCTACAACGA GGGAGAC 14322 6407 AUGAUGAC A UGAUCAC 5574 GGGGGGGGGGGGGGGGGGGGG	6493	UGCUACAG G UCUUAGGC	5550	GCCTAAGA GGCTAGCTACAACGA CTGTAGCA	14299
6478 GCCCGACG A UCCUCAUG 5553 CATGAGGA GGCTAGCTACAACGA CGTCGGGC 14302 6472 CGAUCCUC A UGGAACCG 5554 CGGTTCCA GGCTAGCTACAACGA GAGGATCG 14303 6466 AUCUCAUGGA A CCGUUCUU 5555 AAGAACGG GGCTAGCTACAACGA CAGGATCG 14303 6464 AUGGAACC G UUCUUGAC 5555 AAGAACGG GGCTAGCTACAACGA CACGAGACG 14304 6464 AUGGAACC G UUCUUGAC 5555 TAGGACGG GGCTAGCTACAACGA CAAGAACG 14306 6465 UUCUUGAC A UGUCCAGU 5555 TAGGACGG GGCTAGCTACAACGA CAAGAACG 14306 6455 UUCUUGAC A UGUCCAGU 5557 TGGACGTG GGCTAGCTACAACGA CAAGAACG 14306 6455 UUCUUGAC A UGUCCAGU 5558 ACTGGACGA GGCTAGCTACAACGA GTCAAGAAA 14307 6453 CUUGACAU G UCCAGUGA 5559 TCACTGGA GGCTAGCTACAACGA ATGTCAAG 14308 6464 CAUGUCCA G UGAUCUGC 5560 GCAGATCA GGCTAGCTACAACGA TGGACATG 14308 6448 CAUGUCCA G UGAUCUGC 5561 ACGCGGAG GGCTAGCTACAACGA ACATGGAC 14310 6441 AGUGAUCU G CGCUCCGC 5562 GCGGAGCG GGCTAGCTACAACGA ACATGGAC 14310 6441 AGUGAUCU G CGCUCCGC 5562 GCGGAGCG GGCTAGCTACAACGA GACTAGCAC 14311 6432 UGCGCUCC G CAUGGGCA 5564 TGCCCATG GGCTAGCTACAACGA GACGACTCA 14312 6434 UGCGCUCC G CAUGGGCA 5564 TGCCCATG GGCTAGCTACAACGA GACGACTCA 14312 6432 CGCCUCCGC A UGGGCAG 5565 CCTGCCCA GGCTAGCTACAACGA GACGACCA 14313 6434 UGCGCUCC G CAUGGGCA 5564 TGCCCATG GGCTAGCTACAACGA GACGACCA 14313 6442 AUGCGCAG G UGGUUGU 5566 ACCACCTG GGCTAGCTACAACGA GCGAGCCA 14316 6428 CCGCAUGG G UGGUUGC 5566 ACCACCTG GGCTAGCTACAACGA CCATGCCA 14316 6421 GGCAGG G UGGUUGC 5566 ACCACCTG GGCTAGCTACAACGA CCATGCCA 14316 6424 AUGCGCAG G UGGUUGC 5567 GCAAACCA GGCTAGCTACAACGA CCATGCCA 14316 6421 GGCAGGU G UUUGCAUG 5569 GTATCATG GGCTAGCTACAACGA CCATGCCC 14317 6417 GUUGUUU G CAUGAUAC 5569 GTATCATG GGCTAGCTACAACGA CACTGCC 14316 6421 GGCAGGU G UUUGCAUG 5570 GCAAACCA GGCTAGCTACAACGA AACCACC 14318 6410 UUCCAUGA A UCACCCC 5571 AGACGGAG GGCTAGCTACAACGA AACCACC 14318 6411 UUCCAUGA A UCACCCC 5571 AGACGGAG GGCTAGCTACAACGA AACCACC 14318 6411 UUCCAUGAU A CCCCCCCC 5571 AGACGGAG GGCTAGCTACAACGA ACCACGA 14323 6394 CCCCCCCGG CAACCCC 5574 AGACGAG GGCTAGCTACAACGA ACCACGA 14323 6395 GUCUCCC G CCAGACCC 5576 CGGGAGA GGCTAGCTACAACGA ACCAGCT 14332 6396 ACCCCCC G UACCCCG 5573 TG	6486	GGUCUUAG G CCCGACGA	5551	TCGTCGGG GGCTAGCTACAACGA CTAAGACC	14300
6472 CGAUCCUC A UGGAACCG 5554 CGGTTCCA GGCTAGCTACAACGA GAGGATCG 14303 6467 CUCAUGGA A CCGUUCUU 5555 AAGAACGA GGCTAGCTACAACGA TCCATGAG 14304 6464 AUGGAACC G UUCUUGAC 5556 GTCAAGAA GGCTAGCTACAACGA GTTCCATGA 14306 6457 CGUUCUUG A CAUGUCCA 5557 TGGACATG GGCTAGCTACAACGA GGTTCCAT 14306 6458 UUCUUGAC A UGUCCAGU 5558 ACTGGACA GGCTAGCTACAACGA GAGAACG 14306 6459 UUCUUGAC A UGUCCAGU 5558 ACTGGACA GGCTAGCTACAACGA ATATCAAG 14306 6451 CUUGACAU G UCCAGUGA 5559 TCACTGGA GGCTAGCTACAACGA ATATCAAG 14309 6448 CAUGUCCA G UGAUCUGC 5560 GCAGATCA GGCTAGCTACAACGA ATATCAAG 14309 6448 CAUGUCCA G UGAUCUGC 5561 AGCGCAGA GGCTAGCTACAACGA ATATCAAG 14309 6445 GUCCAGUGA UCUCCGCU 5561 AGCGCAGA GGCTAGCTACAACGA ATATCAAG 14309 6446 AGUGAACUG C GCUCCGC 5562 GCGGAGGG GGCTAGCTACAACGA AGATCACT 14311 6439 UGAUCUGC G CUCCGCAU 5563 ATGCGGAG GGCTAGCTACAACGA AGATCACT 14311 6439 UGAUCUGC G CUCCGCAU 5563 ATGCGGAG GGCTAGCTACAACGA AGATCACT 14312 6431 UGCGCUCC G CAUGGGCA 5564 TGCCCATG GGCTAGCTACAACGA GCGAGCCA 14312 6432 CCGCUCCC G AUGGGCA 5564 TGCCCATG GGCTAGCTACAACGA GCGAGCCA 14313 6422 CCGCUCCC G AUGGGCA 5566 ACCACCTG GGCTAGCTACAACGA GCGAGCGC 14313 6428 CCGCAUGG G CAGUGGU 5566 ACCACCTG GGCTAGCTACAACGA GCGAGCGC 14316 6428 CCGCAUGG G CAGUGGU 5566 ACCACCTG GGCTAGCTACAACGA GCGAGCCA 14316 6429 CGCGCAUG G CUUGCAUG 5567 CCGAAACCA GGCTAGCTACAACGA CCACCCCC 14317 6411 GGUGUUUG AUGAUACC 5569 GTATCATG GGCTAGCTACAACGA AACCACC 14318 6412 UGUUUGCA AUGAUACC 5570 CGGTATCA GGCTAGCTACAACGA AACCACC 14318 6414 UUCCAUGA A UACCGUCC 5571 AGACGGTA GGCTAGCTACAACGA AACCACC 14318 6415 UUGUUUGC AUGAUACC 5571 AGACGGTA GGCTAGCTACAACGA AACCACC 14318 6410 UGCAUGAU A CCGUCCCC 5574 AGAGAGG GGCTAGCTACAACGA AACCACC 14318 6411 UUUCCAUG A UACCGUCC 5571 AGACGGTA GGCTAGCTACAACGA ACCTGCC 14317 6410 UGCAUGAU A CCGCUCCC 5574 AGAGGGG GGCTAGCTACAACGA ACCTGC 14316 6411 UUUCCAUG A UACCACC 5574 AGAGGGG GGCTAGCTACAACGA ACCTGCC 14317 6410 UGCAUGAU A CCGCUCCC 5571 AGACGGGG GGCTAGCTACAACGA ACCACGA 14323 6394 CCCCCCCU A CCCCCCC 5574 AGCCC GCGGAGC GGCTAGCTACAACGA GCGGAGCT 14322 6396 GUCUCCC G CCAAACCC 5574 AGCCGG	6481	UAGGCCCG A CGAUCCUC	5552	GAGGATCG GGCTAGCTACAACGA CGGGCCTA	14301
6467 CUCAUGGA A CCGUUCUU 5555 AAGAACG GGCTAGCTACAACGA TCCATGAG 14304 6464 AUGGAACC G UUCUUGAC 5555 GTCAAGAA GGCTAGCTACAACGA GGTTCCAT 14305 6457 CGUUCUUGA C AUGUCCA 5557 TGGACATG GGCTAGCTACAACGA GGTTACAACGA 14306 6455 UUCUUGAC A UGUCCAGU 5558 ACTGGACA GGCTAGCTACAACGA TGTCAACA 14307 6453 CUUGACAU G UCCAGUGA 5559 TCACTGGA GGCTAGCTACAACGA TGTCAACAG 14309 6448 CAUGUCCA G UGACUCGC 5561 AGCGCAGA GGCTAGCTACACGA CACTGGAC 14310 6441 AGUGAUCU G CGUCCGC 5562 GCGGAGGG GGCTAGCTACACGA CACTGGAC 14310 6441 AGUGAUCU G CGUCCGCAU 5563 ATGCGAG GGCTAGCTACAACGA GCAGATCA 14312 6439 UGAUCUGC G CUCCGCAU 5564 TGCCCATG GGCTAGCTACAACGA GCAGATCA 14312 6432 CGCUCCGC A UGGGCAG 5565 CCTGCCCA GGCTAGCTACAACGA GCCATGCCCA 14313 6424 AUGGCAG G UGGUUUGC 5567 GCAAACCA GGCTAGCTACAACGA CACTGCCCA 14316 6421 AUGGCAG G UGGUUUGC 5567 GCAAACCA GGCTAGCTACAACGA CAC	6478	GCCCGACG A UCCUCAUG	5553	CATGAGGA GGCTAGCTACAACGA CGTCGGGC	14302
6464 AUGGAACC G UUCUUGAC 5555 GTCAAGAA GGCTAGCTACAACGA GGTTCCAT 14305 6457 CGUUCUUG A CAUGUCCA 5557 TGGACATG GGCTAGCTACAACGA CAAGAACG 14306 6455 UUCUUGAC A UGUCCAGU 5558 ACTGGACA GGCTAGCTACAACGA GTCAAGAA 14307 6453 CUUGACAU G UCCAGUGA 5559 TCACTGGA GGCTAGCTACAACGA ATGTCAAG 14308 6444 CAUGUCCA G UGAUCUGC 5560 GCAGATCA GGCTAGCTACAACGA TGGACCT 14310 6445 GUCCAGUG A UCUGCGCU 5561 AGCGCAGA GGCTAGCTACAACGA CACTGGAC 14310 6441 AGUGAUCU G CGCUCCGC 5562 GCGGAGGG GGCTAGCTACAACGA CACTGGAC 14311 6439 UGAUCUGC G CUCCGCAU 5563 ATGCGAG GGCTAGCTACAACGA GCAGCACA 14312 6432 CCGCUCCG C AUGGGCAG 5565 CCTGCCCA GGCTAGCTACAACGA GCAGCCCA 14315 6428 CCGCAUGG C AUGGCAG 5565 CCTGCCCA GGCTAGCTACAACGA CCATCGCG 14315 6421 AUGGCAGU G UUUGCAUG 5566 ACCACCTG GGCTAGCTACAACGA CACTGCCC 14317 6417 GUUGCAUGAU 5568 CATGCAAA GGCTAGCTACAACGA CACCTGCC	6472	CGAUCCUC A UGGAACCG	5554	CGGTTCCA GGCTAGCTACAACGA GAGGATCG	14303
6457 CGUUCUUGA A LAUGUCCA 5557 TGGACATG GGCTAGCTACAACGA CAAGAACG 14306 6455 UUCUUGAC A UGUCCAGU 5558 ACTGGACA GGCTAGCTACAACGA GTCAAGAA 14307 6453 CUUGACAU G UCCAGUGA 5559 TCACTGGA GGCTAGCTACAACGA ATGTCAAG 14308 6448 CAUGUCCA G UGAUCUGC 5560 GCAGATCA GGCTAGCTACAACGA CACTGGAC 14309 6445 GUCCAGUGA A UCUCGGCU 5561 AGGGCAGA GGCTAGCTACAACGA CACTGGAC 14310 6441 AGUGAUCU G CGUCCGC 5562 GGCGAGGG GGCTAGCTACAACGA CACGATCA 14312 6431 UGAUCUGC G CUCCGCAU 5563 ATGCCATG GGCTAGCTACAACGA GCAGATCA 14312 6432 CGCUCCGC A UGGGCAG 5564 TGCCCATG GGCTAGCTACAACGA GCAGAGCG 14314 64232 CGCCCUCGC A UGGGCAG 5566 ACCACCTG GGCTAGCTACAACGA GCGGAGCG 14316 6424 AUGGCAGG G UGGUUUGC 5567 GCAAACCA GGCTAGCTACAACGA CACCCCT 14316 6421 GGUGAGUU G CAUGAUAC 5569 GTATCATG GGCTACAACGA CACCACCCAC 14319 6412 UUGCAUGAU A CCACCUCC 5570 CGGTATCA GGCTACAACGA CACCAACA	6467	CUCAUGGA A CCGUUCUU	5555	AAGAACGG GGCTAGCTACAACGA TCCATGAG	14304
6455 UUCUUGAC A UGUCCAGU 5558 ACTGGACA GGCTAGCTACAACGA GTCAACAA 14307 6453 CUUGACAU G UCCAGUGA 5559 TCACTGGA GGCTAGCTACAACGA ATGTCAAG 14308 6448 CAUGUCCA G UGAUCUGC 5560 GCAGATCA GGCTAGCTACAACGA TGGACATG 14309 6441 AGUCAGUG A UCUCGCC 5561 AGCGCAGA GGCTAGCTACAACGA CACTGGAC 14310 6441 AGUGAUCU G CCUCCGCA 5562 GCGGAGCG GGCTAGCTACAACGA GAGTCAC 14311 6439 UGAUCUGC G CAUGGGCA 5564 AGCCCAGG GGCTAGCTACAACGA GAGTCAC 14312 6434 UGGGCUCC G CAUGGGCA 5564 ATGCCATG GGCTAGCTACAACGA GAGTCAC 14313 6432 CGCUCCGC A UGGGCAGG 5565 CCTGCCCA GGCTAGCTACAACGA CCAGGCG 14314 6424 AUGGGCAG G UGGUUGC 5567 GCAACCT GGCTAACGA CATCCACT 14315 6421 AGCAGGUG G UUUGCAUC 5568 CATGCAAA GGCTAGCTACAACGA CACCTCC 14317 6412 UGGUUGC A UGAUACC 5569 GTATCAT GGCTACAACGA AACCACC 14318 6412 UUUGCAUG A UACCACC 5571 CGGTATCA ACGA CACCACACACACACACACACACACACACACAC	6464	AUGGAACC G UUCUUGAC	5556	GTCAAGAA GGCTAGCTACAACGA GGTTCCAT	14305
6455 UUCUUGAC A UGUCCAGU 5558 ACTGGACA GGCTAGCTACAACGA GTCAAGAA 14307 6453 CUUGACAU G UCCAGUGA 5559 TCACTGGA GGCTAGCTACAACGA ATGTCAAG 14308 6448 CAUGUCCA G UGALUCGC 5560 GCAATCA GGCTAGCTACAACGA ATGTCAAC 14308 6441 AGUCAGUG A UCUGCGCU 5561 AGGCCAGA GGCTAGCTACAACGA CACTGGAC 14310 6441 AGUGAUCU G CCUCCGCAU 5562 GCGGAGCG GGCTAGCTACAACGA AGATCACT 14311 6439 UGAUCUGC G CUCCGCAU 5563 ATGCGGAG GGCTAGCTACAACGA GAGTCAC 14312 6434 UGGCCUCC G CAUGGGCA 5564 TGCCCATG GGCTAGCTACAACGA GAGTCCA 14312 6432 CGCUCCGC A UGGGCAGG 5565 CCTGCCCA GGCTAGCTACAACGA CATGCGC 14314 6424 AUGGCAGG G UGGUUUGC 5567 ACCACCT GGCTAGCTACAACGA CATGCGA 14315 6421 GGCAGGUG G UUUGCAUG 5568 CATGCAACA GGCTAGCTACAACGA CACCCCAT 14316 6412 UGGUUUGC A UGAUACC 5569 GTATCATG GGCTAGCTACAACGA ACCACC 14318 6415 UUGCAUGA A UACCGUCU 5571 CGGTATCATACAACGA ACCACC	6457	CGUUCUUG A CAUGUCCA	5557	TGGACATG GGCTAGCTACAACGA CAAGAACG	14306
6453 CUUGACAU G UCCAGUGA 5559 TCACTGGA GGCTAGCTACAACGA ATGTCAAG 14308 6448 CAUGUCCA G UGAUCUGC 5560 GCAGATCA GGCTAGCTACAACGA TGGACATG 14309 6445 GUCCAGUG A UCUGCGCU 5561 AGCGCAGA GGCTAGCTACAACGA CACTGGAC 14310 6441 AGUGAUCU G CGCUCCC 5562 GCGGAGC GGCTAGCTACAACGA GATCACT 14311 6439 UGAUCUGC G CUCCGCAU 5563 ATGCGAG GGCTAGCTACAACGA GAGATCA 14312 6434 UGCGCUCC G CAUGGGCA 5564 TGCCCATG GGCTAGCTACAACGA GCAGAGCC 14313 6422 CGCUCCGC A UGGGCAGG 5565 CCTGCCCA GGCTAGCTACAACGA GCGAGAGC 14314 6428 CCGCAUGG G CAGGUGGU 5566 ACCACCTG GGCTAGCTACAACGA CACTGCG 14316 6421 GGCAGGUG G UGGUUGC 5567 GCAAACCA GGCTAGCTACAACGA CACCTGC 14316 6417 GGUGGUU G CAUGAUAC 5569 GTATCATG GGCTAGCTACAACGA CACCTGCC 14317 6412 UGUGUUGC A UGAUAC 5570 CGGTATCA GGCTACAACGA ACCCACC 14319 6412 UUGCAUGA A UGAUACC 5571 AGACGGTA GGCTAGCTACAACGA ATCATGCA	6455	UUCUUGAC A UGUCCAGU	5558	ACTGGACA GGCTAGCTACAACGA GTCAAGAA	
6448 CAUGUCCA G UGAUCUGC 5560 GCAGATCA GGCTAGCTACAACGA TGGACATG 14309 6445 GUCCAGUG A UCUGCGCU 5561 AGGCCAGA GGCTAGCTACAACGA CACTGGAC 14310 6441 AGUGAUCU G CGCUCCGC 5562 GCGGAGG GGCTAGCTACAACGA CACTGGAC 14311 6439 UGAUCUGC G CUCCGCAU 5563 ATGCGGAG GGCTAGCTACAACGA GCAGATCA 14312 6434 UGCGCUCC G CAUGGGCA 5564 TGCCCATG GGCTAGCTACAACGA GCAGACCA 14313 6432 CGCUCCGC A UGGGCAG 5566 ACCACCTG GGCTAGCTACAACGA GCAGACCA 14314 6428 CCGCAUGG G CAGGUGGU 5566 ACCACCTG GGCTAGCTACAACGA CACTGCCAT 14316 6424 AUGGGCAG G UGGUUUGC 5567 GCAAACCA GGCTAGCTACAACGA CACCCAT 14316 6417 GGUAGGUG G UUUGCAUG 5568 CATGCAAA GGCTAGCTACAACGA CACCACC 14317 6411 UGGUUUGC A UGAUACC 5570 CGGTATCA GGCTAGCTACAACGA CACACC 14318 6412 UUUGCAUG A UACCGUCU 5571 AGACGTA GGCTAGCTACAACGA CATGCAAA 14320 6410 UGCAUGAU A CCGUCUC 5572 GGAGACGG GGCTAGCTACAACGA ATCATTCA <td>6453</td> <td>CUUGACAU G UCCAGUGA</td> <td>5559</td> <td>TCACTGGA GGCTAGCTACAACGA ATGTCAAG</td> <td></td>	6453	CUUGACAU G UCCAGUGA	5559	TCACTGGA GGCTAGCTACAACGA ATGTCAAG	
6445 GUCCAGUG A UCUGCGCU 5561 AGCGCAGA GGCTAGCTACAACGA CACTGGAC 14310 6441 AGUGAUCU G CGCUCCGC 5562 GCGGAGCG GGCTAGCTACAACGA CAATCACT 14311 6439 UGAUCUGC G CUCCGCAU 5563 ATGCGGAG GGCTAGCTACAACGA GCAGATCA 14312 6434 UGCGCUCC G CAUGGGCA 5564 TGCCCATG GGCTAGCTACAACGA GCAGACCA 14313 6432 CGCUCCGC A UGGGCAGG 5565 CCTGCCCA GGCTAGCTACAACGA CCATGCGG 14314 6428 CCGCAUGG G CAGGUGGU 5566 ACCACCTG GGCTAGCTACAACGA CTGCCCT 14315 6424 AUGGGCAG G UGUUUGC 5567 GCAAACCA GGCTAGCTACAACGA CTGCCCT 14317 6417 GGUGGUU G CAUGAUAC 5569 GTATCATG GGCTAGCTACAACGA CACCCC 14318 6415 UGGUUUGC A UGAUACC 5570 CGGTAGCTACAACGA CATGCAACCA 14320 6410 UUGCAUGA A ACCGUCC 5571 AGACGGTA GCTACAACGA CATGCAA 14321 6407 AUGAUACC G UCUCCCCG 5573 CGGGAGA GCTAGCTACAACGA ATCATGCAA 14321 6394 CCCCCCUG A CCCCCUG 5575 CGGGGGG GGCTAGCTACAACGA CTGGCGGG 1	6448	CAUGUCCA G UGAUCUGC	5560		
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6384 CCCCCUGU A CCCACGUU 5577 AACGTGGG GGCTAGCTACAACGA ACAGGGGG 14326 6380 CUGUACCC A CGUUGGCA 5578 TGCCAACG GGCTAGCTACAACGA GGGTACAG 14327 6378 GUACCCAC G UUGGCAUG 5579 CATGCCAA GGCTAGCTACAACGA GTGGGTAC 14328 6374 CCACGUUG C CAUGAGAA 5580 TTCTCATG GGCTAGCTACAACGA CAACGTGG 14329 6372 ACGUUGGC A UGAGAAGA 5581 TCTTCTCA GGCTAGCTACAACGA GCCAACGT 14330 6358 AGAAAGGG A CUCCCGGC 5582 GCCGGGAG GGCTAGCTACAACGA CCCTTTCT 14331 6351 GACUCCCG C CAACCGCG 5583 CGCGGTAG GGCTAGCTACAACGA CGGGAGTC 14332 6348 UCCCGGCA A CCGCGGCA 5584 TGCCGCGG GGCTAGCTACAACGA TGCCGGGA 14333 6345 CGGCAACC G CGGCAGGA 5584 TGCCGCGG GGCTAGCTACAACGA GGTTGCCG 14334 6342 CAACCGC G CAGGAGCU 5586 AGCTCCTG GGCTAGCTACAACGA CGCGGTTG 14335 6342 CAACCGCG CAGGAGCU 5586 AGCTCCTG GGCTAGCTACAACGA CGCGGTTG 14336 6336 CGGCAGGA G CUUGGACU 5587 AGTCCAAG GGCTAGCTACAACGA TCCTGCCG 14336 6330 GAGCUUGG A CUGAAGCC 5588 GGCTTCAG GGCTAGCTACAACGA CCAAGCTC 14337 6324 GGACUGGA G CUUGGACU 5587 AGTCCAAG GGCTAGCTACAACGA TCCTGCCG 14336 6330 GAGCUUGG A CUGAAGCC 5588 GGCTTCAG GGCTAGCTACAACGA TCCTGCCC 14337 6324 GGACUGAA G CCAGGUCU 5589 AGACCTGG GGCTAGCTACAACGA TCCTGCCC 14338 6319 GAAGCCAG G UCUUGAAG 5590 CTTCAAGA GGCTAGCTACAACGA TTCAGTCC 14339 6311 GUCUUGAA G UCAGUCAA 5591 TTGACTGA GGCTAGCTACAACGA TTCAAGAC 14340 6307 UGAAGUCA G UCAACACC 5592 GGTGTTGA GGCTAGCTACAACGA TGACTTCA 14341					
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6311 GUCUUGAA G UCAGUCAA 5591 TTGACTGA GGCTAGCTACAACGA TTCAAGAC 14340 6307 UGAAGUCA G UCAACACC 5592 GGTGTTGA GGCTAGCTACAACGA TGACTTCA 14341		GGACUGAA G CCAGGUCU	5589	AGACCTGG GGCTAGCTACAACGA TTCAGTCC	14338
6307 UGAAGUCA G UCAACACC 5592 GGTGTTGA GGCTAGCTACAACGA TGACTTCA 14341		GAAGCCAG G UCUUGAAG	5590		14339
	6311	GUCUUGAA G UCAGUCAA	5591		14340
6303 GUCAGUCA A CACCGUGC 5593 GCACGGTG GGCTAGCTACAACGA TGACTGAC 14342	6307	UGAAGUCA G UCAACACC	5592		14341
	6303	GUCAGUCA A CACCGUGC	5593	GCACGGTG GGCTAGCTACAACGA TGACTGAC	14342

6301	CAGUCAAC A CCGUGCAU	5594	ATGCACGG GGCTAGCTACAACGA GTTGACTG	14343
6298	UCAACACC G UGCAUAUC	5595	GATATGCA GGCTAGCTACAACGA GGTGTTGA	14344
6296	AACACCGU G CAUAUCCA	5596	TGGATATG GGCTAGCTACAACGA ACGGTGTT	14345
6294	CACCGUGC A UAUCCAGU	5597	ACTGGATA GGCTAGCTACAACGA GCACGGTG	14346
6292	CCGUGCAU A UCCAGUCC	5598	GGACTGGA GGCTAGCTACAACGA ATGCACGG	14347
6287	CAUAUCCA G UCCCAAAC	5599	GTTTGGGA GGCTAGCTACAACGA TGGATATG	14348
6280	AGUCCCAA A CAUCCCUU	5600	AAGGGATG GGCTAGCTACAACGA TTGGGACT	14349
6278	UCCCAAAC A UCCCUUAG	5601	CTAAGGGA GGCTAGCTACAACGA GTTTGGGA	14350
6270	AUCCCUUA G CCACGAGC	5602	GCTCGTGG GGCTAGCTACAACGA TAAGGGAT	14351
6267	CCUUAGCC A CGAGCCGG	5603	CCGGCTCG GGCTAGCTACAACGA GGCTAAGG	14352
6263	AGCCACGA G CCGGAACA	5604	TGTTCCGG GGCTAGCTACAACGA TCGTGGCT	14353
6257	GAGCCGGA A CAUGGCGU	5605	ACGCCATG GGCTAGCTACAACGA TCCGGCTC	14354
6255	GCCGGAAC A UGGCGUGG	5606	CCACGCCA GGCTAGCTACAACGA GTTCCGGC	14355
6252	GGAACAUG G CGUGGAGC	5607	GCTCCACG GGCTAGCTACAACGA CATGTTCC	14356
6250	AACAUGGC G UGGAGCAG	5608	CTGCTCCA GGCTAGCTACAACGA GCCATGTT	14357
6245	GGCGUGGA G CAGUCCUC	5609	GAGGACTG GGCTAGCTACAACGA TCCACGCC	14358
6242	GUGGAGCA G UCCUCAUU	5610	AATGAGGA GGCTAGCTACAACGA TGCTCCAC	14359
6236	CAGUCCUC A UUGAUCCA	5611	TGGATCAA GGCTAGCTACAACGA GAGGACTG	14360
6232	CCUCAUUG A UCCACUGA	5612	TCAGTGGA GGCTAGCTACAACGA CAATGAGG	14361
6228	AUUGAUCC A CUGAUGGA	5613	TCCATCAG GGCTAGCTACAACGA GGATCAAT	14362
6224	AUCCACUG A UGGAGCCU	5614	AGGCTCCA GGCTAGCTACAACGA CAGTGGAT	14362
6219	CUGAUGGA G CCUCCUCA	5615	TGAGGAGG GGCTAGCTACAACGA TCCATCAG	14363
6210	CCUCCUCA G CAGCUGAG	5616	CTCAGCTG GGCTAGCTACAACGA TCCATCAG	
6207	CCUCAGCA G CAGCUGAG CCUCAGCA G CUGAGUGA			14365
	GCAGCUGA G UGAUGGUG	5617	TCACTCAG GGCTAGCTACAACGA TGCTGAGG	14366
6202		5618	CACCATCA GGCTAGCTACAACGA TCAGCTGC	14367
6199	GCUGAGUG A UGGUGAGG	5619	CCTCACCA GGCTAGCTACAACGA CACTCAGC	14368
6196	GAGUGAUG G UGAGGCUG	5620	CAGCCTCA GGCTAGCTACAACGA CATCACTC	14369
6191	AUGGUGAG G CUGGAGAG	5621	CTCTCCAG GGCTAGCTACAACGA CTCACCAT	14370
6181	UGGAGAGG A UUUGUGUG	5622	CACACAAA GGCTAGCTACAACGA CCTCTCCA	14371
6177	GAGGAUUU G UGUGACGC	5623	GCGTCACA GGCTAGCTACAACGA AAATCCTC	14372
6175	GGAUUUGU G UGACGCGC	5624	GCGCGTCA GGCTAGCTACAACGA ACAAATCC	14373
6172	UUUGUGUG A CGCGCGCC	5625	GGCGCGCG GGCTAGCTACAACGA CACACAAA	14374
6170	UGUGUGAC G CGCGCCGC	5626	GCGGCGC GGCTAGCTACAACGA GTCACACA	14375
6168	UGUGACGC G CGCCGCUG	5627	CAGCGGCG GGCTAGCTACAACGA GCGTCACA	14376
6166	UGACGCGC G CCGCUGCG	5628	CGCAGCGG GGCTAGCTACAACGA GCGCGTCA	14377
6163	CGCGCGCC G CUGCGUCG	5629	CGACGCAG GGCTAGCTACAACGA GGCGCGCG	14378
6160	GCGCCGCU G CGUCGCUC	5630	GAGCGACG GGCTAGCTACAACGA AGCGGCGC	14379
6158	GCCGCUGC G UCGCUCUC	5631	GAGAGCGA GGCTAGCTACAACGA GCAGCGGC	14380
6155	GCUGCGUC G CUCUCAGG	5632	CCTGAGAG GGCTAGCTACAACGA GACGCAGC	14381
6147	GCUCUCAG G CACAUAGU	5633	ACTATGTG GGCTAGCTACAACGA CTGAGAGC	14382
6145	UCUCAGGC A CAUAGUGC	5634	GCACTATG GGCTAGCTACAACGA GCCTGAGA	14383
6143	UCAGGCAC A UAGUGCGU	5635	ACGCACTA GGCTAGCTACAACGA GTGCCTGA	14384
6140	GGCACAUA G UGCGUGGG	5636	CCCACGCA GGCTAGCTACAACGA TATGTGCC	14385
6138	CACAUAGU G CGUGGGGG	5637	CCCCCACG GGCTAGCTACAACGA ACTATGTG	14386
6136	CAUAGUGC G UGGGGGAG	5638	CTCCCCCA GGCTAGCTACAACGA GCACTATG	14387
6127	UGGGGAG A CAUGGUUG	5639	CAACCATG GGCTAGCTACAACGA CTCCCCCA	14388
6125	GGGGAGAC A UGGUUGCC	5640	GGCAACCA GGCTAGCTACAACGA GTCTCCCC	14389
6122	GAGACAUG G UUGCCCCG	5641	CGGGGCAA GGCTAGCTACAACGA CATGTCTC	14390
6119	ACAUGGUU G CCCCGCGA	5642	TCGCGGGG GGCTAGCTACAACGA AACCATGT	14391
6114	GUUGCCCC G CGAAGCGA	5643	TCGCTTCG GGCTAGCTACAACGA GGGGCAAC	14392
6109	CCCGCGAA G CGAACGCU	5644	AGCGTTCG GGCTAGCTACAACGA TTCGCGGG	14393
6105	CGAAGCGA A CGCUAUCA	5645	TGATAGCG GGCTAGCTACAACGA TCGCTTCG	14394
6103	AAGCGAAC G CUAUCAGC	5646	GCTGATAG GGCTAGCTACAACGA GTTCGCTT	14395
6100	CGAACGCU A UCAGCCGA	5647	TCGGCTGA GGCTAGCTACAACGA AGCGTTCG	14396
6096	CGCUAUCA G CCGAUUCA	5648	TGAATCGG GGCTAGCTACAACGA TGATAGCG	14397
6092	AUCAGCCG A UUCAUCCA	5649	TGGATGAA GGCTAGCTACAACGA CGGCTGAT	14398
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60915	6088	GCCGAUUC A UCCACUGC	5650	GCAGTGGA GGCTAGCTACAACGA GAATCGGC	14399
6076	6084	AUUCAUCC A CUGCACAG	5651	CTGTGCAG GGCTAGCTACAACGA GGATGAAT	14400
6074	6081	CAUCCACU G CACAGCGC	5652	GCGCTGTG GGCTAGCTACAACGA AGTGGATG	14401
	6079	UCCACUGC A CAGCGCCC	5653	GGGCGCTG GGCTAGCTACAACGA GCAGTGGA	14402
	6076	ACUGCACA G CGCCCUCU	5654	AGAGGGCG GGCTAGCTACAACGA TGTGCAGT	14403
6056 GUGGGCCA & CAUGCCGA 5659 CCTGGGCA GGCTAGCTACAACGA GTGGGCCA 14406 6056 GGGCCACA & UGCCGACG 5659 CCTGGGCA GGCTAGCTACAACGA ATGTGGGCC 14408 6050 ACAUGCCGA & CGCAGUAU 5660 ATTACTGCG GGCTAGCTACAACGA ATGTGGGCC 14408 6050 ACAUGCCGA & CAUGUAU 5660 ATTACTGCG GGCTAGCTACAACGA ATGTGGGC 14408 6051 ACAUGCCGA & CAUGUAUG 5661 CGATACTG GGCTAGCTACAACGA CTGGCACT 14409 6048 AUGCCGAC & CAUGUAUG 5662 CAGCGATA GGCTAGCTACAACGA GTGGGCTA 14410 6045 CCGACCGA & UAUCGCUG 5662 CAGCGATA GGCTAGCTACAACGA TTGGCTCG 14411 6046 GCAGUAUG & CUUCGCCA 5663 CGCAGCGA GGCTAGCTACAACGA ATCTCCT 14413 6047 GCAGUAUC & CUUCGCAC 5664 GTGGGCA GGCTAGCTACAACGA ATCTCCT 14413 6037 GUAUCCUG & GCACACCC 5665 GTGTTGGC GGCTAGCTACAACGA ATCTCCT 14413 6038 AUGCCUGC & CACACCAC 5666 GTGTTGGC GGCTAGCTACAACGA ACCGATAC 14416 6039 CCUCGCAC & CACACCAC 5666 GTGTTGGC GGCTAGCTACAACGA CGCACGC 14416 6031 CUUCGCAC & CACACCAC 5666 CGGGTGG GGCTAGCTACAACGA CGCACGC 14416 6032 CGCACCCC & 5667 GGTGGGTG GGCTAGCTACAACGA CGCACGC 14416 6033 CGCUGCCA & CACACCAC 5666 CGGGTGG GGCTAGCTACAACGA CGCACGC 14416 6034 CGCACCCC & 5667 GGTGGTG GGCTAGCTACAACGA CGCACGC 14416 6035 AUGCCCCG & CACACCAC 5666 CGGGTGG GGCTAGCTACAACGA CGCACGC 14416 6036 CGCACCCC & CCCCGACG 5669 CGGGTGG GGCTAGCTACAACGA CGCACGC 14416 6037 CGCCCTGC GGCTAGCTACAACGA CGCCAGG 14416 6038 CGCACACC & CCCCGACG 5669 CGGGTGGCTAGCTACAACGA CGCTGGG 14416 6039 CCCCGACG A CACACCAC 5661 CGCCTGG GGCTAGCTACAACGA CGCGGG 14416 6031 CGCCCTGG GGCTAGCTACAACGA CGCTGGGT 14421 6031 CGCCCTGG GGCTAGCTACAACGA CGCTGGT 14421 6031 CGCCCTGG GGCTAGCTACAACGA CCTCGCT 14426 6031 CGCCCTGG GGCTAGCTACAACGA CCTCGCT 14426 6031 ACCAGGGC A UGACCCG 5677 CTCCTGC GGCTAGCTACAACGA CCTCGCT 14426 6031 ACCAGGGC A UGACCCG 5678 CGCCTGG GGCTAGCTACAACGA CCTCGCT 14425 6031 ACCAGGGC A UGACCGC 5678 GGCCTAGCTACAACGA CCTCGCT 14425 6031 AG	6074	UGCACAGC G CCCUCUCC	5655	GGAGAGGG GGCTAGCTACAACGA GCTGTGCA	14404
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5984 GGGAGUNA G UUGACCAG 5677 CTGGTCAA GGCTACAACGA TTACTCCC 14426 5980 GUNAGUUG A CCAGGUCC 5678 GGACCTGG GGCTACCAACGA CAACTTAC 14427 5975 UUGACCAG G UCCUCGU 5679 ACCAGGA GGCTACCTACAACGA CGACGTCAA 14428 5968 GGUCUCG G UAGAAGGC 5680 GCCTTCTA GGCTACAACGA CGAGGACC 14429 5961 GGUAGAAG G CAUCUCCC 5681 GGCAGATG GGCTACAACGA CATCTACA 14431 5959 UAGAAGGC A UCUCCCCG 5682 CGGGGAGA GGCTACAACGA GCCTTCTA 14431 5959 UAGAAGGC A UCUCCCCG 5683 GTCATGAG GGCTACCAACGA GGCGGGG 14431 5959 UAGAAGGC A UCUCCCC 5684 CAAGGTCA GGCTACAACGA GGCGGGG 14431 5951 AUCUCCCC G UGACCUG 5684 CAAGGTCA GGCTACCAACGA GCTGCACAACGA CTCAACGA 14433 5947 CCCCGCUAG A CACCAGAA 5686 TCTCGTGG GGCTACCAACGA CTTCAAGG 14435 5935 CCUUGAAG C CACCAGAA 5687 TGCTCTGG GGCTACCTACAACGA CTTCCAAGG 14436 5926 CCACAGAGA C ACCCGCC 5688 GGCGGTG GGCTACCTACAACGA TCTCCTCT 1	5995	AGAGGAUG G CAGGGAGU	5675	ACTCCCTG GGCTAGCTACAACGA CATCCTCT	14424
5980 GUAAGUUG A CCAGGUCC 5678 GGACCTGG GCTAGCTACAACGA CAACTTAC 14427 5975 UUGACCAG G UCCUCGGU 5679 ACCGAGGA GGCTAGCTACAACGA CTGGTCAA 14428 5968 GGUCCUCG G UAGAAGGC 5680 GCCTTCTA GGCTACAACGA CTGGTCAA 14429 5961 GGUAGAAG G CAUCUCC 5681 GGGAGATG GGCTACAACGA CTCTACC 14430 5959 UAGAAGGC A UCUCCCC 5682 CGGGGAGA GGCTAGCTACAACGA GCCTTCTA 14431 5951 AUCUCCCC G CUCAUGAC 5683 GTCATGAG GGCTACAACGA GGCGTACTACACGA GGGGGGG 14432 5947 CCCCGCUC A UGACCUUG 5684 CAAGGTCA GGCTACAACGA GAGCGGGG 14433 5944 CGCUCAUG A CCUUGAAC 5685 CTTCAAGG GGCTACAACGA CATGAGCG 14434 5935 CCUUGAAG G CCACGAGA 5685 CTCCGTG GGCTACCTACAACGA CATCTACA 14435 5926 CCACGAGA G CACCCGC 5688 GGCGGTG GGCTACAACGA CTCTCGT 14436 5924 ACGAGAGC A CCCCGCC 5689 GTGCGGG GGCTACAACGA GCCTTCCT 14438 5920 GAGCACCC G CACCUCCU 5690 AGGAGTGG GCTACAACGA GCGGGTGCT 14439	5988	GGCAGGGA G UAAGUUGA	5676	TCAACTTA GGCTAGCTACAACGA TCCCTGCC	14425
5975 UUGACCAG G UCCUCGU 5679 ACCGAGGA GGCTAGCTACAACGA CTGGTCAA 14428 5968 GGUCCUCG G UAGAAGGC 5680 GCCTTCTA GGCTAGCTACAACGA CGAGGACC 14429 5961 GGUAGAAG G CAUCUCCC 5681 GGGAGATG GGCTAGCTACAACGA CTTCTACC 14430 5959 UAGAAGGC A UCUCCCCG 5682 CGGGGAGA GGCTAGCTACAACGA GGGGAGAT 14431 5951 AUCUCCCC G CUCAUGAC 5683 GTCATGAG GGCTAGCTACAACGA GGGGAGAT 14432 5947 CCCCGCUC A UGACCUUG 5684 CAAGGTCA GGCTACCTACAACGA GAGCGGGG 14433 5944 CGCUCAUG A CCUUGAAG 5685 CTTCAAGG GGCTAGCTACAACGA CATGAGCG 14434 5935 CCUUGAAG G CCACGAGA 5686 TCTCGTGG GGCTAGCTACAACGA CTTCAAGG 14436 5926 CCACGAGA G CACCCGCC 5688 GGCGGGTG GCTAGCTACAACGA GCCTTCCT 14436 5924 ACGAGAGC A CCCGCCAC 5689 GTGGCGG GCTAGCTACAACGA GCTTCTCGT 14439 5917 CACCCGCC A CUCCUU 5690 AGGAGTGG GCTAGCTACAACGA GCTTCTCGT 14439 5911 CCACUCCU G CUCCAUAG 5691 AGCAGGAG GCTAGCTACAACGA AGGACGTC<	5984	GGGAGUAA G UUGACCAG	5677	CTGGTCAA GGCTAGCTACAACGA TTACTCCC	14426
5968 GGUCCUCG G UAGAAGGC 5680 GCCTTCTA GGCTAGCTACAACGA CGAGGACC 14429 5961 GGUAGAAG G CAUCUCCC 5681 GGGAGATG GGCTAGCTACAACGA CTTCTACC 14430 5959 UAGAAGGC A UCUCCCCG 5682 CGGGGAGA GGCTAGCTACAACGA GCCTTCTA 14431 5951 AUCUCCCC G CUCAUGAC 5683 GTCATGAG GGCTAGCTACAACGA GAGCGGG 14432 5947 CCCCGCUC A UGACCUUG 5684 CAAGGTCA GCTAGCTACAACGA GACGGGG 14433 5944 CGCUCAUG A CCUUGAAG 5685 CTTCAAGG GGCTAGCTACAACGA CATGAGCG 14434 5935 CCUUGAAG G CCACGAGA 5686 TCTCGTGG GGCTAGCTACAACGA GCCTTCA 14436 5926 CCACGAGA G CACCCGCC 5688 GGCGGGTG GGCTAGCTACAACGA GCCTTCGT 14437 5924 ACGAGAGA C ACCCCCC 5689 GTGGCGG GGCTAGCTACAACGA GCTCTCT 14439 5917 CACCCGCC A CUCCUU 5690 AGGAGGGG GGCTAGCTACAACGA GCTCCT 14439 5911 CCACUCCU G CUCCAUAG 5692 CTATGGAG GGCTAGCTACAACGA GGAGCAGC 14440 5911 CCACUCCU G CUCCAUAG 5692 CTATGGAG GGCTAGCTACAACGA AGGACTACA	5980	GUAAGUUG A CCAGGUCC	5678	GGACCTGG GGCTAGCTACAACGA CAACTTAC	14427
5961 GGUAGAAG G CAUCUCCC 5681 GGGAGATG GGCTAGCTACAACGA CTTCTACC 14430 5959 UAGAAGGC A UCUCCCCG 5682 CGGGGAGA GGCTAGCTACAACGA GCCTTCTA 14431 5951 AUCUCCCC G CUCAUGAC 5683 GTCATGAG GGCTAGCTACAACGA GGGGAGAT 14432 5947 CCCCGCUC A UGACCUUG 5684 CAAGGTCA GGCTAGCTACAACGA GAGGGGG 14433 5944 CGCUCAUGA A CCUUGAAG 5685 CTTCAAGG GGCTAGCTACAACGA CATGAGCC 14434 5935 CCUUGAAG C CACGAGA 5686 CTCCATGG GGCTAGCTACAACGA CTTCAAGG 14436 5926 CCACGAGA G CACCCGCC 5688 GGCGGGT GGCTAGCTACAACGA GCCTTCA 14436 5926 CCACGAGAG C CCCCCCC 5689 GTGGCGGG GGCTAGCTACAACGA GCTCTCT 14438 5920 GAGCACCC G CCACUCCU 5690 AGGAGTGG GGCTAGCTACAACGA GGTGCTC 14439 5917 CACCCGCC A CUCCUAGA 5691 AGCAGGAG GGCTAGCTACAACGA GGGGTGG 14440 5911 CCACUCCU G CUCCAUAG 5692 CTATGGAG GGCTAGCTACAACGA AGGAGTGG 14441 5993 GCUCCAUA G CCCGCCAG 5694 CTGGCGG GGCTAGCTA	5975	UUGACCAG G UCCUCGGU	5679	ACCGAGGA GGCTAGCTACAACGA CTGGTCAA	14428
5959 UAGAAGGC A UCUCCCCG 5682 CGGGGAGA GGCTAGCTACAACGA GCCTTCTA 14431 5951 AUCUCCC G CUCAUGAC 5683 GTCATGAG GGCTAGCTACAACGA GGGGAGAT 14432 5947 CCCCGCUC A UGACCUUG 5684 CAAGGTCA GGCTAGCTACAACGA GAGCGGGG 14433 5944 CGCUCAUG A CCUUGAAG 5685 CTTCAAGG GGCTAGCTACAACGA CATGAGG 14434 5935 CCUUGAAG G CCACGAGA 5686 TCTCTGTGG GGCTAGCTACAACGA CTTCAAGG 14436 5932 UGAAGGCC A CGAGAGA 5687 TGCTCTCG GGCTAGCTACAACGA GCCTTCA 14436 5926 CCACGAGA G CACCCGCC 5688 GGCGGGTG GGCTAGCTACAACGA TCTCGTG 14436 5924 ACGAGAGC A CCCGCCAC 5689 GTGGCGG GGCTAGCTACAACGA GCTCTCT 14438 5920 GAGCACCC G CCACUCCU 5690 AGGAGGG GGCTAGCTACAACGA GCTCTCT 14439 5917 CACCCGCC A CUCCUGU 5691 AGCAGGAG GGCTAGCTACAACGA GGCGGTG 14440 5911 CCACUCCU G CUCCAUAG 5692 CTATGGGG GGCTAGCTACAACGA AGGAGTAG 14441 5903 GCUCCAUA G CCCGCCAG 5693 GCGGCTAGCTACAACGA AGAGCAGA	5968	GGUCCUCG G UAGAAGGC	5680	GCCTTCTA GGCTAGCTACAACGA CGAGGACC	14429
5951 AUCUCCCC G CUCAUGAC 5683 GTCATGAG GGCTAGCTACAACGA GGGGAGAT 14432 5947 CCCCGCUC A UGACCUUG 5684 CAAGGTCA GGCTAGCTACAACGA GAGCGGGG 14433 5944 CGCUCAUG A CCUUGAAG 5685 CTTCAAGG GGCTAGCTACAACGA CATGAGCG 14434 5935 CCUUGAAG G CCACGAGA 5686 TCTCGTGG GGCTAGCTACAACGA CTTCAAGG 14435 5922 UGAAGGCC A CGAGACA 5687 TGCTCTCG GGCTAGCTACAACGA GCCTTCA 14436 5926 CCACGAGA G CACCCGCC 5688 GGCGGGT GGCTAGCTACAACGA CTCTCGT 14437 5924 ACGAGAGC A CCCGCCAC 5689 GTGGCGGG GGCTAGCTACAACGA GCTCTCGT 14439 5920 GAGCACCC G CCACUCCU 5690 AGGAGTGG GGCTAGCTACAACGA GCTCTCGT 14439 5917 CACCGCC A CUCCUGU 5691 AGCAGGAG GGCTACCTACAACGA GGCGGTG 14440 5911 CCACUCCU G CUCCAUAG 5692 CTATGGAG GGCTAGCTACAACGA GGAGCAGG 14441 5903 GCUCCAUA G CCCGCCAG 5693 GCGGGGT GGCTAGCTACAACGA GGAGCAGG 14442 5899 CAUAGCCC G CCAGAAUG 5695 CATTCTGG GGCTAGCTACAACGA TCTGGCG <td>5961</td> <td>GGUAGAAG G CAUCUCCC</td> <td>5681</td> <td>GGGAGATG GGCTAGCTACAACGA CTTCTACC</td> <td>14430</td>	5961	GGUAGAAG G CAUCUCCC	5681	GGGAGATG GGCTAGCTACAACGA CTTCTACC	14430
5947 CCCCGCUC A UGACCUUG 5684 CAAGGTCA GGCTAGCTACAACGA GAGCGGGG 14433 5944 CGCUCAUG A CCUUGAAG 5685 CTTCAAGG GGCTAGCTACAACGA CATGAGCG 14434 5935 CCUUGAAG G CCACGAGA 5686 TCTCGTGG GGCTAGCTACAACGA CTTCAAGG 14435 5932 UGAAGGCC A CGAGAGCA 5687 TGCTCTCG GGCTAGCTACAACGA CTTCAAGG 14436 5926 CCACGAGA G CACCCGCC 5688 GGCGGGTG GGCTAGCTACAACGA TCTCGTGG 14437 5924 ACGAGAGC A CCCGCCAC 5689 GTGGCGGG GGCTAGCTACAACGA TCTCGTGG 14437 5920 GAGCACCC G CCACUCCU 5690 AGGAGTGG GGCTAGCTACAACGA GCTCTCGT 14438 5917 CACCCGCC A CUCCUGCU 5691 AGCAGGAG GGCTAGCTACAACGA GGCGGGTG 14440 5911 CCACUCCU G CUCCAUAG 5692 CTATGGAG GGCTAGCTACAACGA GGAGTGG 14441 5906 CCUGCUCC A UAGCCCGC 5693 GCGGGCTA GGCTAGCTACAACGA GGAGTGG 14442 5903 GCUCCAUA G CCCGCCAG 5694 CTGGCGGG GGCTAGCTACAACGA GGAGTGG 14442 5899 CAUAGCCC G CCAGAUG 5695 CATTCTGG GGCTAGCTACAACGA TATGGAGC 14443 5899 CAUAGCCC G CCAGAUG 5695 CATTCTGG GGCTAGCTACAACGA TATGGAGC 14444 5893 CCGCCAGA A UGUCUACA 5696 TGTAGACA GGCTAGCTACAACGA TCTGGCGG 14445 5891 GCCAGAAU G UCUACAAG 5697 CTTGTAGA GGCTAGCTACAACGA TCTGGCGG 14445 5893 CCGCCAGA A UGUCUACA 5696 TGTAGACA GGCTAGCTACAACGA AGCATTC 14446 5887 GAAUGUCU A CAAGCACC 5698 GGTGCTTG GGCTAGCTACAACGA AGCATTC 14447 5883 GUCUACAA G CACCUUCC 5699 GGAAGGTG GGCTAGCTACAACGA AGCATTC 14447 5883 GUCUACAA G CACCUUCC 5699 GGAAGGTG GGCTAGCTACAACGA AGCATTC 14446 5887 GAAUGUCU A CAAGCACC 5698 GGTGCTTG GGCTAGCTACAACGA ATTCTGGC 14446 5887 GAAUGUCU A CAAGCACC 5698 GGTGCTTG GGCTAGCTACAACGA TTTGTAGAC 14447 5883 GUCUACAA G CCCUUCCC 5699 GGAAGGTG GGCTAGCTACAACGA ATTCTGGC 14446 5887 GAAUGUCU A CAAGCACC 5698 GGTGCTTG GGCTAGCTACAACGA TTTGTAGAC 14447 5883 GUCUACAA G CCUUCCCA 5700 TGGGAAGG GGCTAGCTACAACGA CTTGGGAA 14459 5866 CAAGGCCU A UGCUCCA 5701 TGGGAGC GGCTAGCTACAACGA AGCATTC 14445 5864 AGGCCUAU G CUGCCAAC 5703 GTTGGCAG GGCTAGCTACAACGA AGCATTG 14455 5864 AGGCCUAU G CCAACAGC 5704 GCTGTTGG GGCTAGCTACAACGA AGCATAGG 114455	5959	UAGAAGGC A UCUCCCCG	5682	CGGGGAGA GGCTAGCTACAACGA GCCTTCTA	14431
5944 CGCUCAUG A CCUUGAAG 5685 CTTCAAGG GGCTAGCTACAACGA CATGAGCG 14434 5935 CCUUGAAG G CCACGAGA 5686 TCTCGTGG GGCTAGCTACAACGA CTTCAAGG 14435 5932 UGAAGGCC A CGAGAGCA 5687 TGCTCTCG GGCTAGCTACAACGA GGCCTTCA 14436 5926 CCACGAGA G CACCCGCC 5688 GGCGGGT GGCTAGCTACAACGA TCTCGTG 14437 5924 ACGAGAGC A CCCGCCAC 5689 GTGGCGG GGCTAGCTACAACGA GCTCTCGT 14438 5920 GAGCACCC G CCACUCCU 5690 AGGAGTGG GGCTAGCTACAACGA GGTGTCC 14439 5917 CACCCGCC A CUCCUGCU 5691 AGCAGGAG GGCTAGCTACAACGA GGCGGGTG 14440 5911 CCACUCCU G CUCCAUAG 5692 CTATGGAG GGCTAGCTACAACGA AGGAGTGG 14441 5906 CCUGCUCC A UAGCCCGC 5693 GCGGGCTA GCTAGCTACAACGA AGGACAGG 14442 5903 GCUCCAUA G CCCGCCAG 5694 CTGGCGG GGCTAGCTACAACGA AGGACTAT 14444 5889 CAUAGCCC G CCAGAAUG 5695 CATTCTGG GGCTAGCTACAACGA TCTGGCGG 14444 5899 CAUAGCCC G CCAGAAUG 5696 TGTAGACA GGCTAGCTACAACGA ATCTGGC </td <td>5951</td> <td>AUCUCCCC G CUCAUGAC</td> <td>5683</td> <td>GTCATGAG GGCTAGCTACAACGA GGGGAGAT</td> <td>14432</td>	5951	AUCUCCCC G CUCAUGAC	5683	GTCATGAG GGCTAGCTACAACGA GGGGAGAT	14432
5935 CCUUGAAG G CCACGAGA 5686 TCTCGTGG GGCTAGCTACAACGA CTTCAAGG 14435 5932 UGAAGGCC A CGAGAGCA 5687 TGCTCTCG GGCTAGCTACAACGA GGCCTTCA 14436 5926 CCACGAGA G CACCCGCC 5688 GGCGGTG GGCTAGCTACAACGA TCTCGTGG 14437 5924 ACGAGAGC A CCCGCCAC 5689 GTGGCGGG GGCTAGCTACAACGA GCTCTCGT 14438 5920 GAGCACCC G CCACUCCU 5690 AGGAGTGG GGCTAGCTACAACGA GGCGGGTG 14440 5917 CACCCGCC A CUCCUGCU 5691 AGCAGGAG GGCTAGCTACAACGA GGCGGGTG 14440 5911 CCACUCCU G CUCCAUAG 5692 CTATGGAG GGCTAGCTACAACGA AGGAGTGG 14441 5906 CCUGCUCC A UAGCCCGC 5693 GCGGGCTA GCTAACAACGA AGGACAGG 14442 5903 GCUCCAUA G CCCGCCAG 5694 CTGGCGGG GGCTAGCTACAACGA TATGGAGC 14443 5899 CAUAGCCC G CCAGAAUG 5695 CATTCTGG GGCTAGCTACAACGA TCTGGCGG 14444 5893 CCGCCAGA A UGUCUACA 5696 TGTAGACA GGCTAGCTACAACGA ATCTGGC 14446 5891 GCCAGAAU G UCUACAAG 5697 CTTGTAGA GGCTAGCTACAACGA AGACATTC<	5947	CCCCGCUC A UGACCUUG	5684	CAAGGTCA GGCTAGCTACAACGA GAGCGGGG	14433
5932 UGAAGGCC A CGAGAGCA 5687 TGCTCTCG GGCTAGCTACAACGA GGCCTTCA 14436 5926 CCACGAGA G CACCCGCC 5688 GGCGGGTG GGCTAGCTACAACGA TCTCGTGG 14437 5924 ACGAGAGC A CCCGCCAC 5689 GTGGCGGG GGCTAGCTACAACGA GCTCTCGT 14438 5920 GAGCACCC G CCACUCCU 5690 AGGAGTGG GGCTAGCTACAACGA GGCTGCT 14439 5917 CACCCGCC A CUCCUGCU 5691 AGCAGGAG GGCTAGCTACAACGA GGCGGTG 14440 5911 CCACUCCU G CUCCAUAG 5692 CTATGGAG GGCTAGCTACAACGA AGGAGTGG 14441 5906 CCUGCUCC A UAGCCCGC 5693 GCGGGGTA GGCTAGCTACAACGA AGGACAGG 14442 5903 GCUCCAUA G CCCGCCAG 5694 CTGGCGGG GGCTAGCTACAACGA TATGGAGC 14443 5899 CAUAGCCC G CCAGAAUG 5695 CATTCTGG GGCTAGCTACAACGA TCTGGCGG 14444 5893 CCGCCAGA A UGUCUACA 5696 TGTAGACA GGCTAGCTACAACGA ATTCTGGC 14445 5891 GCCAGAAU G UCUACAAG 5697 CTTGTAGA GGCTAGCTACAACGA ATTCTGGC 14446 5887 GAAUGUCU A CAAGCACC 5698 GGTAGCTAGCAACGA TTGTAGACGA TTG	5944	CGCUCAUG A CCUUGAAG	5685	CTTCAAGG GGCTAGCTACAACGA CATGAGCG	14434
5932 UGAAGGCC A CGAGAGCA 5687 TGCTCTCG GGCTAGCTACAACGA GGCCTTCA 14436 5926 CCACGAGA G CACCCGCC 5688 GGCGGGTG GGCTAGCTACAACGA TCTCGTGG 14437 5924 ACGAGAGC A CCCGCCAC 5689 GTGGCGGG GGCTAGCTACAACGA GCTCTCGT 14438 5920 GAGCACCC G CCACUCCU 5690 AGGAGTGG GGCTAGCTACAACGA GGCGGTG 14439 5917 CACCCGCC A CUCCUGCU 5691 AGCAGGAG GGCTAGCTACAACGA GGCGGGTG 14440 5911 CCACUCCU G CUCCAUAG 5692 CTATGGAG GGCTAGCTACAACGA AGGAGTGG 14441 5906 CCUGCUCC A UAGCCCGC 5693 GCGGGGTA GGCTAGCTACAACGA AGGACAGG 14442 5903 GCUCCAUA G CCCGCCAG 5694 CTGGCGGG GGCTAGCTACAACGA TATGGAGC 14443 5899 CAUAGCCC G CCAGAAUG 5695 CATTCTGG GGCTAGCTACAACGA TCTGGCGG 14444 5893 CCGCCAGA A UGUCUACA 5696 TGTAGACA GGCTAGCTACAACGA ATTCTGGC 14445 5891 GCCAGAAU G UCUACAAG 5697 CTTGTAGA GGCTAGCTACAACGA ATTCTGGC 14446 5887 GAAUGUCU A CAAGCACC 5698 GGTGCTTGCTACAACGA AGCATTC <td>5935</td> <td>CCUUGAAG G CCACGAGA</td> <td>5686</td> <td>TCTCGTGG GGCTAGCTACAACGA CTTCAAGG</td> <td>14435</td>	5935	CCUUGAAG G CCACGAGA	5686	TCTCGTGG GGCTAGCTACAACGA CTTCAAGG	14435
5926 CCACGAGA G CACCCGCC 5688 GGCGGGTG GGCTAGCTACAACGA TCTCGTGG 14437 5924 ACGAGAGC A CCCGCCAC 5689 GTGGCGG GGCTAGCTACAACGA GCTCTCGT 14438 5920 GAGCACCC G CCACUCCU 5690 AGGAGTGG GGCTAGCTACAACGA GGGTGCTC 14439 5917 CACCCGCC A CUCCUGCU 5691 AGCAGGAG GGCTAGCTACAACGA GGCGGGTG 14440 5911 CCACUCCU G CUCCAUAG 5692 CTATGGAG GGCTAGCTACAACGA AGGAGTGG 14441 5906 CCUGCUCC A UAGCCCGC 5693 GCGGGCTA GGCTACAACGA GGAGCAGG 14442 5903 GCUCCAUA G CCCGCCAG 5694 CTGGCGGG GGCTAGCTACAACGA TATGGAGC 14443 5899 CAUAGCCC G CCAGAAUG 5695 CATTCTGG GGCTAGCTACAACGA TCTGGCGG 14444 5893 CCGCCAGA A UGUCUACA 5696 TGTAGACA GGCTAGCTACAACGA TCTGGCG 14445 5891 GCCAGAAU G UCUACAAG 5697 CTTGTAGA GGCTAGCTACAACGA AGACATTC 14446 5887 GAAUGUCU A CAAGCAC 5698 GGTGCTTG GGCTAGCTACAACGA TTGTAGAC 14447 5881 CUACAAGC A CCUUCCA 5700 TGGGAGG GGCTAGCTACAACGA CTTGGAA	5932	UGAAGGCC A CGAGAGCA	5687		14436
5924 ACGAGAGC A CCCGCCAC 5689 GTGGCGGG GGCTAGCTACAACGA GCTCTCGT 14438 5920 GAGCACCC G CCACUCCU 5690 AGGAGTGG GGCTAGCTACAACGA GGGTGCTC 14439 5917 CACCCGCC A CUCCUGCU 5691 AGCAGGAG GGCTAGCTACAACGA GGCGGTG 14440 5911 CCACUCCU G CUCCAUAG 5692 CTATGGAG GGCTAGCTACAACGA AGGAGTGG 14441 5906 CCUGCUCC A UAGCCCGC 5693 GCGGGCTA GGCTAGCTACAACGA AGGAGTAG 14442 5903 GCUCCAUA G CCCGCCAG 5694 CTGGCGGG GGCTAGCTACAACGA GGAGCAGG 14442 5899 CAUAGCCC G CCAGAAUG 5695 CATTCTGG GGCTAGCTACAACGA GGGCTATG 14444 5893 CCGCCAGA A UGUCUACA 5696 TGTAGACA GGCTAGCTACAACGA TCTGGCGG 14445 5891 GCCAGAAU G UCUACAAG 5697 CTTGTAGA GGCTAGCTACAACGA ATCTGGC 14446 5887 GAAUGUCU A CAAGCACC 5698 GGTGCTTG GGCTAGCTACAACGA AGACATTC 14447 5883 GUCUACAA G CACCUUCC 5699 GGAAGGTG GGCTAGCTACAACGA TTGTAGAC 14448 5881 CUACAAGC A CCUUCCCA 5700 TGGGAAGG GGCTAGCTACAACGA GCTTGTAG 5870 UUCCCAAG G CCUAUGCU 5701 AGCATAGG GGCTAGCTACAACGA AGCCTTG 14445 5866 CAAGGCCU A UGCUGCCA 5702 TGGCAGCA GGCTAGCTACAACGA AGGCCTTG 14451 5864 AGGCCUAU G CUGCCAAC 5703 GTTGGCAG GGCTAGCTACAACGA ATAGGCCT 14452 5861 CCUAUGCU G CCAACAGC 5704 GCTGTTAG GGCTAGCTACAACGA AGCCTTG 14452 5861 CCUAUGCU G CCAACAGC 5704 GCTGTTAG GGCTAGCTACAACGA ATAGGCCT 14453	5926	CCACGAGA G CACCCGCC	5688		14437
5920GAGCACCC G CCACUCCU5690AGGAGTGG GGCTAGCTACAACGA GGGTGCTC144395917CACCCGCC A CUCCUGCU5691AGCAGGAG GGCTAGCTACAACGA GGCGGGTG144405911CCACUCCU G CUCCAUAG5692CTATGGAG GGCTAGCTACAACGA AGGAGTGG144415906CCUGCUCC A UAGCCCGC5693GCGGGCTA GGCTAGCTACAACGA GGAGCAGG144425903GCUCCAUA G CCCGCCAG5694CTGGCGGG GGCTAGCTACAACGA TATGGAGC144435899CAUAGCCC G CCAGAAUG5695CATTCTGG GGCTAGCTACAACGA GGGCTATG144445893CCGCCAGA A UGUCUACA5696TGTAGACA GGCTAGCTACAACGA TCTGGCGG144455891GCCAGAAU G UCUACAAG5697CTTGTAGA GGCTAGCTACAACGA ATTCTGGC144465887GAAUGUCU A CAAGCACC5698GGTGCTTG GGCTAGCTACAACGA AGACATTC144475883GUCUACAA G CACCUUCC5699GGAAGGTG GGCTAGCTACAACGA TTGTAGAC144485881CUACAAGC A CCUUCCCA5700TGGGAAGG GGCTAGCTACAACGA GCTTGTAG144495870UUCCCAAG G CCUAUGCU5701AGCATAGG GGCTAGCTACAACGA CTTGGGAA144505866CAAGGCCU A UGCUGCA5702TGGCAGCA GGCTAGCTACAACGA AGGCCTTG144515864AGGCCUAU G CUGCCAAC5703GTTGGCAG GGCTAGCTACAACGA ATAGGCCT144525861CCUAUGCU G CCAACAGC5704GCTGTTGG GGCTAGCTACAACGA AGCATAGG14453	5924	ACGAGAGC A CCCGCCAC	5689		
5917 CACCCGCC A CUCCUGCU 5691 AGCAGGAG GGCTAGCTACAACGA GGCGGGTG 14440 5911 CCACUCCU G CUCCAUAG 5692 CTATGGAG GGCTAGCTACAACGA AGGAGTGG 14441 5906 CCUGCUCC A UAGCCCGC 5693 GCGGGCTA GGCTAGCTACAACGA GGAGCAGG 14442 5903 GCUCCAUA G CCCGCCAG 5694 CTGGCGGG GGCTAGCTACAACGA TATGGAGC 14443 5899 CAUAGCCC G CCAGAAUG 5695 CATTCTGG GGCTAGCTACAACGA GGGCTATG 14444 5893 CCGCCAGA A UGUCUACA 5696 TGTAGACA GGCTAGCTACAACGA TCTGGCGG 14445 5891 GCCAGAAU G UCUACAAG 5697 CTTGTAGA GGCTAGCTACAACGA ATTCTGGC 14446 5887 GAAUGUCU A CAAGCACC 5698 GGTGCTTG GGCTAGCTACAACGA AGACATTC 14447 5883 GUCUACAA G CACCUUCC 5699 GGAAGGTG GGCTAGCTACAACGA TTGTAGAC 14448 5881 CUACAAGC A CCUUCCCA 5700 TGGGAAGG GGCTAGCTACAACGA GCTTGTAG 5870 UUCCCAAG G CCUAUGCU 5701 AGCATAGG GGCTAGCTACAACGA CTTGGGAA 14450 5866 CAAGGCCU A UGCUGCCA 5702 TGGCAGCA GGCTAGCTACAACGA AGGCCTTG 14451 5864 AGGCCUAU G CUGCCAAC 5703 GTTGGCAG GGCTAGCTACAACGA ATAGGCCT 14452 5861 CCUAUGCU G CCAACAGC 5704 GCTGTTGG GGCTAGCTACAACGA AGACATTG 14452					
5911 CCACUCCU G CUCCAUAG 5692 CTATGGAG GGCTAGCTACAACGA AGGAGTGG 14441 5906 CCUGCUCC A UAGCCCGC 5693 GCGGGCTA GGCTAGCTACAACGA GGAGCAGG 14442 5903 GCUCCAUA G CCCGCCAG 5694 CTGGCGGG GGCTAGCTACAACGA TATGGAGC 14443 5899 CAUAGCCC G CCAGAAUG 5695 CATTCTGG GGCTAGCTACAACGA GGGCTATG 14444 5893 CCGCCAGA A UGUCUACA 5696 TGTAGACA GGCTAGCTACAACGA TCTGGCGG 14445 5891 GCCAGAAU G UCUACAAG 5697 CTTGTAGA GGCTAGCTACAACGA ATTCTGGC 14446 5887 GAAUGUCU A CAAGCACC 5698 GGTGCTTG GGCTAGCTACAACGA AGACATTC 14447 5883 GUCUACAA G CACCUUCC 5699 GGAAGGTG GGCTAGCTACAACGA TTGTAGAC 14448 5881 CUACAAGC A CCUUCCCA 5700 TGGGAAGG GGCTAGCTACAACGA GCTTGTAG 5870 UUCCCAAG G CCUAUGCU 5701 AGCATAGG GGCTAGCTACAACGA CTTGGGAA 14450 5866 CAAGGCCU A UGCUGCCA 5702 TGGCAGCA GGCTAGCTACAACGA AGGCCTTG 14451 5864 AGGCCUAU G CUGCCAAC 5703 GTTGGCAG GGCTAGCTACAACGA ATAGGCCT 14452 5861 CCUAUGCU G CCAACAGC 5704 GCTGTTGG GGCTAGCTACAACGA AGCATAGG 14453	<u> </u>				
5906 CCUGCUCC A UAGCCCGC 5693 GCGGGCTA GGCTAGCTACAACGA GGAGCAGG 14442 5903 GCUCCAUA G CCCGCCAG 5694 CTGGCGGG GGCTAGCTACAACGA TATGGAGC 14443 5899 CAUAGCCC G CCAGAAUG 5695 CATTCTGG GGCTAGCTACAACGA GGGCTATG 14444 5893 CCGCCAGA A UGUCUACA 5696 TGTAGACA GGCTAGCTACAACGA TCTGGCGG 14445 5891 GCCAGAAU G UCUACAAG 5697 CTTGTAGA GGCTAGCTACAACGA ATTCTGGC 14446 5887 GAAUGUCU A CAAGCACC 5698 GGTGCTTG GGCTAGCTACAACGA AGACATTC 14447 5883 GUCUACAA G CACCUUCC 5699 GGAAGGTG GGCTAGCTACAACGA TTGTAGAC 14448 5881 CUACAAGC A CCUUCCCA 5700 TGGGAAGG GGCTAGCTACAACGA GCTTGTAG 14449 5870 UUCCCAAG G CCUAUGCU 5701 AGCATAGG GGCTAGCTACAACGA CTTGGGAA 14450 5866 CAAGGCCU A UGCUGCCA 5702 TGGCAGCA GGCTAGCTACAACGA AGGCCTTG 14451 5864 AGGCCUAU G CUGCCAAC 5703 GTTGGCAG GGCTAGCTACAACGA ATAGGCCT 14452 5861 CCUAUGCU G CCAACAGC 5704 GCTGTTGG GGCTAGCTACAACGA AGCATAGG 14453					<u> </u>
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SASSECTEG CCAGCGAU 5708	5854	UGCCAACA G CCGCGCCA	5706	TGGCGCGG GGCTAGCTACAACGA TGTTGGCA	14455
5845 CCGCGCCA G. CABUCCG 5709 CGGCATCG GGCTAGCTRCAACGA TGGCGCG 14458 5840 CCCAGCGA UGCCGCGC 5711 GGCCGGCG GGTTAGCTACAACGA CGCTAGCTG 14459 5840 CCAGCGAG UGCCGCC 5711 GGCCGCGG GGTTAGCTACAACGA CGCATCG 14451 5834 AUGCCGC G. GGCCACGA 5712 CGTGGGG GGCTAGCTACAACGA CGCATCG 14462 5834 AUGCCGC G. CCCACGAA 5713 TCTCGTGG GGCTAGCTACAACGA GCCGCCT 14462 5830 CGGCCCC A. CGAAACG 5714 GGCTTCG GGCTAGCTACAACGA GCCGCCCT 14465 5818 AGCCGAAA C. GGCAACCG 5715 CGTTTCG GGCTACCTACAACGA CTTCGTCG 14465 5818 AGCCGAAA A. CGGCUCIC 5717 CCCCACAAG GGCTAGCTACAACGA CTCCCCCC 14465 5810 UGGGGGCA GUUGGGGG 5717 CCCACCAAGGCTACCAACGA CGCTCCCC 14467 5794 CGAGUUGG 5718 CCCACCAA GGCTAGCTACAACGA CCACCCC 14469 5791 GGGCACCC 5721 GGGGAGCA CA CCCCCAC 5722 AGGGGGGCA CA CCCACCC 5722 AGGGGGGCA CA CCCACCC 5723 TGGGGGGG G					
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5831		 	 		
5834			 		
5830 COGCGCCC A CGAAGGCC 5714 GOCCTTCG GGCTAGCTACAACGA GGGCGCCC 14463 5824 CCACGAAG G CCGAAACG 5715 CGTTTCGG GGCTAGCTACAACGA CTTCGTGG 14465 5818 AGGCCGAA A GGCGUCUGGGG 5716 CGTTTCGG GGCTAGCTACAACGA CTTCGTCG 14465 5815 CCGAAACG G CUCUGGGG 5717 CCCCCAAG GCTAGCTACAACGA CTCTCCCCA 14467 5803 UGGGGGA G CGAGCUG 5718 CCCACCAC GCTAGCTACAACGA TCCCCCCC 14467 5799 GGGAGCA G UUGGGCG 5710 GCGCCCAA GCCTACCACC 5721 AGGTGGCG GCTTAGCTACAACGA CCCCCAACC 14472 5791 GUUGGGC G CCACCCC 5721 AGGGTGGC GGCTTAGCTACAACGA CCCCCAAC 14472 5784 GGCGGCC A CCCACCCC 5722 AGGGTGGG GCCTAGCTACAACGA GCCCCAAC 14472 5788 GGCGGCC A CCCCCCC 5722 AGGGTGGG GCCTAGCTACAACGA GCCCAACCA 14472 5771 CCCAAGAG G UUGCAACAG 5725 CTGTTCAACAGGA CACCAACGA CCCCAACAG 5771 CCCCAAGAG G UUGCAACAG 5725 CTGTTCAACAGGA ACCAACGA CACCAACAGA CACCACAAG 5771 CCCCACAGAGCAGAGAGAGAGAGAGAGAACA					
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5818 ABGCCGAA A CGGCUCUG 5716 CAGAGCCG GCTAGCTACAACGA TTCGGCCT 14465 5815 CCGAAACG G CUCUGGGG 5717 CCCCAGAG GCTAGCTACAACGA CTCTCGCC 14467 5803 UGGGGGG 5719 CCCCAGAG GCTAGCTACAACGA TCCCCCC 14467 5799 GGGAGGG G UUGGGGG 5719 CGCCCACA GCTAGCTACAACGA CCAACTCC 14468 5791 GUUGGGCG 5721 GFGGGGCG GGCTAGCTACAACGA CCAACTCC 14469 5781 GUUGGGCG C CACCCCC 5722 AGGTGGCG GGCTACAACGA CCAACTCG 14479 5788 GGGCGGCC C CCCCCCC 5722 AGGTGGGG GGCTAGCTACAACGA GGCGCCC 14472 5773 CUCCCAAG A UGUUGAAC 5724 GTCAACA GGCTAGCTACAACGA GGTGGCC 14473 5771 CCCAAGGA G UGUUGAACG 5725 CCTCTTCT GGCTAGCTACAACGA ACTTGCGC 14473 5771 CCCAAGGA G UGUUGAG 5726 CCCTCCTG GGCTAGCTACAACGA CCTCCTCT 14473 5771 CCCAAGGA G UGUUGAG 5727 CCAAAGCA GCCTAACAACGA CCTCCCTT 14475 5772 CCCACCGGCTAGCTACAACGA CCTCCCTT 14477 14472 5783					14463
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5803 UGGGGGGA G CGAGUUGG 5718 CCAACTCG GGCTAGCTACAACGA TCCCCCCA 14467 5799 GGGAGCGA G UUGGGCGG 5719 CGGCCCAA GGCTAGCTACAACGA CAACTCG 14468 5794 CGAGUUGG G CGGCCACCC 5721 GGTGGGCG GGCTAGCTAACACGA CAACTCG 14469 5791 GUUGGGCG G CCACCCCU 5721 GTGGGGGG GGCTAGCTACAACGA GGCCGCCCC 14470 5784 GGCGCCCC 5722 AGGGTGGG GGCTAGCTACAACGA GGCCGCCC 14471 5784 GGCCACCC A CCCUCCCA 5723 TGGGGGGG GCTAGCTACAACGA GGCCGACCACACACACACACACACACACACAC	-	AGGCCGAA A CGGCUCUG	5716	CAGAGCCG GGCTAGCTACAACGA TTCGGCCT	14465
5799 GGGAGCGA G UUGGGCGG 5719 CCGCCCAA GGCTAGCTACAACGA TCGCTCCC 14458 5794 GGAGUUGG G CGACCCAC 5720 GGTGGCG GGCTAGCTACAACGA CCAACTCG 14469 5791 GUUGGGCG G CACCCAC 5721 GGGGGG GGCTAGCTACAACGA GCCCCAAC 14470 5788 GGGCGGC A CCCACCCU 5722 AGGGTGG GGCTAGCTACAACGA GGCCGCC 14471 5784 GGCCACCC A CCCUCCCA 5723 TGGGAGGG GGCTAGCTACAACGA GGCTGGC 14473 5773 CUCCCAAGA U GUUGAACA 5724 GTTCAACA GGCTAGCTACAACGA CTGTGGGA 14473 5771 CCCCAAGAU G UUGAACAG 5725 CTGTTCAA GGCTAGCTACAACGA TCAACCAC 14475 5766 GAUGUUGG 5726 CCCTCCTG GGCTAGCTACAACGA TCAACCAC 14476 5758 ACGAGAGG G UGUUGGG 5728 ACCCAAAG GGCTAGCTACAACGA CCCCTCT 14477 5746 UUUGGGUG G UGAGCGGG 5730 CCCGCCTCA GGCTAGCTACAACGA CACCCAAA 14479 5746 UUUGGGUG G UGAGCGGG 5731 CCAGCCCG GGCTAGCTACAACGA CACCCACC 14481 5738 GUGAGCGG 5731 ACCACCACAAA 14480	5815	CCGAAACG G CUCUGGGG	5717	CCCCAGAG GGCTAGCTACAACGA CGTTTCGG	14466
5794 CGAGUUGG G CGGCCACC 5720 GGTGGCCG GGCTAGCTACAACGA CCAACTCG 14459 5791 GUUGGCG G CCACCCAC 5721 GTGGGTGG GGCTACCTACAACGA CGCCCAAC 14470 5788 GGGCGCCA C CCCCCCA 5722 AGGGTGGG GGCTACCTACAACGA GGCCCCAC 14471 5784 GGCCACCC A CCCUCCA 5723 TGGGAGG GGCTACCTACAACGA GGCTGCCA 14472 5773 CUCCAAGA U GUUGAACG 5725 CTGTCAA GGCTAGCTACAACGA ATCTTGGG 14473 5776 GAJUGUGA A CAGGAGG 5726 CCCTCCTG GGCTACACAACA ATCTTGG 14475 5758 ACAGAAGG G UGCUUUGG 5728 CCCAAGACA GGCTACCTACAACGA TCAACCT 14475 5758 ACAGAAGG G UGCUUUGG 5728 ACCCAAGA GGCTACCTACAACGA CACCACT 14477 5749 UGCUUUGG G UGAGCGGG 5729 GCTCACCA GGCTAGCTACAACGA CACCACAA 14478 5740 UGUGUGG G UGAGCGGG 5731 CCAGCCCG GGCTAGCTACAACGA CACCCACA 14478 5734 GCUGGCUG G UGAUGAG 5731 CCAGCCCG GGCTAGCTACAACGA CACCCACC 14481 5734 GCCGGCUG G UGAUGAG 5732 ATCACACG GGCTAGCTACAACGA CACCACCC	5803	UGGGGGA G CGAGUUGG	5718	CCAACTCG GGCTAGCTACAACGA TCCCCCCA	14467
5791 GUUGGGCG G CCACCCCU 5721 GTGGGTGG GGCTAGCTACAACGA CGCCCAAC 14470 5788 GGGCGCC A CCCACCCU 5722 AGGGTGGG GGCTAGCTACAACGA GGCCGCC 14472 5784 GGCCACCC A CCCUCCCA 5723 TGGGAGGG GGCTAGCTACAACGA GGGTGGCC 14472 5773 CUCCCAAG A UGUUGAC 5724 GTTCAACA GGCTACCAACGA CTTGGGAG 14473 5771 CCCAGAGU G UUGAACAG 5726 CGTTCTCTG GGCTAGCTACAACGA ATCTTGG 14475 5766 GAUGGUGA A CAGGAGGG 5726 CCCTCTGT GGCTAGCTACAACGA ATCTTGG 14475 5758 ACAGGAGG G UGUUUGG 5727 CCAAAGCA GGCTAGCTACAACGA CCTCCTT 14476 5758 ACAGGAGG G UGUUUGG 5729 CCCACCCA GGCTAGCTACAACGA ACCTCCT 14476 5759 ACAGGAGG GUGGUGAC 5729 GCTCACCA GGCTAGCTACAACGA ACCCCAAA 14479 5742 GUUGGGGG GUGGUGA 5731 CCCGCTCA GGCTAGCTACAACGA CACCCAAA 14479 5734 GUGGGCUG G UGAUGGG 5731 ACCCACAG GGCTAGCTACAACGA CACCCACA 14481 5734 GCGGGCUG G UGAUGGAG 5732 ATCCACAG GGCTAGCTACAACGA CACCCACA	5799	GGGAGCGA G UUGGGCGG	5719	CCGCCCAA GGCTAGCTACAACGA TCGCTCCC	14468
5788 GGGCGGCC A CCCACCCU 5722 AGGGTAGCTACAACGA GGCCGCCC 14471 5784 GGCCACCC A CCCUCCCA 5723 TGGGAGG GGCTACCTACAACGA GGGTGGCC 14472 5773 CUCCCAAGA A UGUUGAAC 5724 GTCAACA GGCTAGCTACAACGA CTTGGGG 14473 5771 CCCAAGAU G UGUUGA 5725 CCTGTCTG GGCTACCTACAACGA ATCTGGG 14474 5766 GAUGUUGA 5727 CCAAGGCA GGTCACCA GGCTACCTACAACGA ATCTCTGT 14475 5756 ACAGGAGG G UGUUGGU 5727 CCAAGCA GGCTACCTACAACGA ACCCTCCT 14477 5749 UGCUUGG GUGGGGG 5730 CCCGCTCA GGCTACCTACAACGA ACCCAAAA 14478 5742 GGGGGGG GUGAGCGG 5731 CCAGCCG GGCTACCTACAACGA CACCACA 14481 5738 GUGAGCGG CUGUGAG 5731 CCAGCCG GCTAGCTACAACGA ACCCACC 14482 5731 GCCAGCGG <td< td=""><td>5794</td><td>CGAGUUGG G CGGCCACC</td><td>5720</td><td>GGTGGCCG GGCTAGCTACAACGA CCAACTCG</td><td>14469</td></td<>	5794	CGAGUUGG G CGGCCACC	5720	GGTGGCCG GGCTAGCTACAACGA CCAACTCG	14469
5784 GGCCACCC A CCCUCCA 5723 TGGGAGGG GGCTAGCTACAACGA GGGTGGCC 14472 5773 CUCCCAAG A UGUUGAAC 5724 GTTCAACA GGCTAGCTACAACGA CTTGGGGA 14473 5771 CCCCAAGAU G UUGAACG 5725 CTGTTCAA GGCTAGCTACAACGA ATCTTGGG 14473 5766 GAUGUUGA A CAGGAGG 5725 CCCTCCTG GGCTAGCTACAACGA TCATCATC 14475 5758 ACAGGAGG G UUGUUGG 5728 CCCAAAGCA GGCTACCTACAACGA TCACCTCT 14476 5759 ACAGAAGG G CUUGGGU 5728 ACCCACA GGCTACCTACAACGA CCTCCTCT 14476 5749 UGCUUGG G UGGAGC 5730 CCCGCTCA GGCTAGCTACAACGA CCCCACAC 14478 5742 GGUGGUGA G CGGGCUGG 5731 CCCGCTCA GGCTAGCTACAACGA CACCCAC 14480 5734 GGUGGUGA G CGGGCUG 5732 ATCACCAG GGCTAGCTACAACGA CACCCGC 14481 5734 GGCGGCUGA UGAGAGCU 5733 CTCCATCA GGCTAGCTACAACGA CACCAGC 14482 5731 GGCGGGGGG G UGAAAU 5735 ATCACAG GGCTAGCTACAACGA CACCAGC 14482 5722 UGAAGGG G UGAAAU 5735 ATCACAG GGCTAGCTACAACGA ACCCAGC 14483	5791	GUUGGGCG G CCACCCAC	5721	GTGGGTGG GGCTAGCTACAACGA CGCCCAAC	14470
5773 CUCCCAAG A UGUUGAAC 5724 GTTCAACA GGCTAGCTACAACGA CTTGGGAG 14473 5771 CCCAAGAU G UUGAACAG 5725 CTGTTCAA GGCTAGCTACAACGA ATCTTGGG 14474 5766 GAUGUUGA A CAGGAAGG 5726 CCCTCCTG GGCTAGCTACAACGA ATCAACAT 14475 5758 ACAGGAGG G UUGUUGG 5727 CCAAAGCA GGCTAGCTACAACGA CCTCCTT 14476 5759 UGCUUUGG G UGGUGAGC 5728 ACCCAAAG GGCTAGCTACAACGA CCAAGCCA 14477 5749 UGCUUUGG G UGGUGAGC 5729 GCCCACCA GGCTAGCTACAACGA CACCAAGCA 14477 5746 UUUGGUUG G UGGUGAGC 5730 CCCGCCA GGCTAGCTACAACGA CACCAAGC 14478 5742 GGUGGUG G UGAGGAG 5731 CCCGCCA GGCTAGCTACAACGA CACCACC 14480 5738 GUGAGCG G UGAUGAG 5731 CCCACCA GGCTAGCTACAACGA CACCACCC 14481 5731 GCGGUGU G UGAUGAG 5733 CTCCATCA GGCTAGCTACACAGA CACCAGCC 14483 5731 GGCGUGUG A UGGAGGCU 5734 AGCCTCCA GGCTAGCTACACAGA CACCAGCC 14483 5725 UGAUGAGG G UGAUGAU 5734 AGCCTCCA GGCTAGCTACACAGA CACCAGCC	5788	GGGCGGCC A CCCACCCU	5722	AGGGTGGG GGCTAGCTACAACGA GGCCGCCC	14471
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5631 CCACAUGU G CUUCGCCC 5761 GGGCGAAG GGCTAGCTACAACGA ACATGTGG 14510	5633	UUCCACAU G UGCUUCGC	5760	GCGAAGCA GGCTAGCTACAACGA ATGTGGAA	14509
	5631	CCACAUGU G CUUCGCCC	5761	GGGCGAAG GGCTAGCTACAACGA ACATGTGG	14510

5626	UGUGCUUC G CCCAGAAA	5762	TTTCTGGG GGCTAGCTACAACGA GAAGCACA	14511
5617	CCCAGAAA G CCUCAAGG	5763	CCTTGAGG GGCTAGCTACAACGA TTTCTGGG	14512
5608	CCUCAAGG G CUCGCCAC	5764	GTGGCGAG GGCTAGCTACAACGA CCTTGAGG	14513
5604	AAGGGCUC G CCACUUGG	5765	CCAAGTGG GGCTAGCTACAACGA GAGCCCTT	14514
5601	GGCUCGCC A CUUGGAUU	5766	AATCCAAG GGCTAGCTACAACGA GGCGAGCC	14515
5595	CCACUUGG A UUCCACCA	5767	TGGTGGAA GGCTAGCTACAACGA CCAAGTGG	14516
5590	UGGAUUCC A CCACGGGA	5768	TCCCGTGG GGCTAGCTACAACGA GGAATCCA	14517
5587	AUUCCACC A CGGGAGCA	5769	TGCTCCCG GGCTAGCTACAACGA GGTGGAAT	14518
5581	CCACGGGA G CAGCAGCC	5770	GGCTGCTG GGCTAGCTACAACGA TCCCGTGG	14519
5578	CGGGAGCA G CAGCCUCC	5771	GGAGGCTG GGCTAGCTACAACGA TGCTCCCG	14520
5575	GAGCAGCA G CCUCCGCU	5772	AGCGGAGG GGCTAGCTACAACGA TGCTGCTC	14521
5569	CAGCCUCC G CUUGGUUG	5773	CAACCAAG GGCTAGCTACAACGA GGAGGCTG	14522
5564	UCCGCUUG G UUGGUGGC	5774	GCCACCAA GGCTAGCTACAACGA CAAGCGGA	14523
5560	CUUGGUUG G UGGCUGUU	5775	AACAGCCA GGCTAGCTACAACGA CAACCAAG	14524
5557	GGUUGGUG G CUGUUUGC	5776	GCAAACAG GGCTAGCTACAACGA CACCAACC	14525
5554	UGGUGGCU G UUUGCAGC	5777	GCTGCAAA GGCTAGCTACAACGA AGCCACCA	14526
5550	GGCUGUUU G CAGCAAUC	5778	GATTGCTG GGCTAGCTACAACGA AAACAGCC	
5547	UGUUUGCA G CAAUCCGA	5779	TCGGATTG GGCTAGCTACAACGA TGCAAACA	14527
	 		CGCTCGGA GGCTAGCTACAACGA TGCTAGAACA	14528
5544	UUGCAGCA A UCCGAGCG	5780		14529
5538	CAAUCCGA G CGCCUUCU	5781	AGAAGGCG GGCTAGCTACAACGA TCGGATTG	14530
5536	AUCCGAGC G CCUUCUGC	5782	GCAGAAGG GGCTAGCTACAACGA GCTCGGAT	14531
5529	CGCCUUCU G CUUGAACU	5783	AGTTCAAG GGCTAGCTACAACGA AGAAGGCG	14532
5523	CUGCUUGA A CUGCUCGG	5784	CCGAGCAG GGCTAGCTACAACGA TCAAGCAG	14533
5520	CUUGAACU G CUCGGCGA	5785	TCGCCGAG GGCTAGCTACAACGA AGTTCAAG	14534
5515	ACUGCUCG G CGAGCUGC	5786	GCAGCTCG GGCTAGCTACAACGA CGAGCAGT	14535
5511	CUCGGCGA G CUGCAUCC	5787	GGATGCAG GGCTAGCTACAACGA TCGCCGAG	14536
5508	GGCGAGCU G CAUCCCCU	5788	AGGGGATG GGCTAGCTACAACGA AGCTCGCC	14537
5506	CGAGCUGC A UCCCCUGU	5789	ACAGGGGA GGCTAGCTACAACGA GCAGCTCG	14538
5499	CAUCCCCU G UUCGAUGU	5790	ACATCGAA GGCTAGCTACAACGA AGGGGATG	14539
5494	CCUGUUCG A UGUAAGGG	5791	CCCTTACA GGCTAGCTACAACGA CGAACAGG	14540
5492	UGUUCGAU G UAAGGGAG	5792	CTCCCTTA GGCTAGCTACAACGA ATCGAACA	14541
5483	UAAGGGAG G UGUGAGGC	5793	GCCTCACA GGCTAGCTACAACGA CTCCCTTA	14542
5481	AGGGAGGU G UGAGGCAC	5794	GTGCCTCA GGCTAGCTACAACGA ACCTCCCT	14543
5476	GGUGUGAG G CACACUCC	5795	GGAGTGTG GGCTAGCTACAACGA CTCACACC	14544
5474	UGUGAGGC A CACUCCUC	5796	GAGGAGTG GGCTAGCTACAACGA GCCTCACA	14545
5472	UGAGGCAC A CUCCUCCA	5797	TGGAGGAG GGCTAGCTACAACGA GTGCCTCA	14546
5464	ACUCCUCC A UCUCAUCG	5798	CGATGAGA GGCTAGCTACAACGA GGAGGAGT	14547
5459	UCCAUCUC A UCGAACUC	5799	GAGTTCGA GGCTAGCTACAACGA GAGATGGA	14548
5454	CUCAUCGA A CUCCUGGU	5800	ACCAGGAG GGCTAGCTACAACGA TCGATGAG	14549
5447	AACUCCUG G UAGAGAGC	5801	GCTCTCTA GGCTAGCTACAACGA CAGGAGTT	14550
5440	GGUAGAGA G CCUCCCUG	5802	CAGGGAGG GGCTAGCTACAACGA TCTCTACC	14551
5432	GCCUCCCU G UCGGGGAU	5803	ATCCCCGA GGCTAGCTACAACGA AGGGAGGC	14552
5425	UGUCGGGG A UAACAGCC	5804	GGCTGTTA GGCTAGCTACAACGA CCCCGACA	14553
5422	CGGGGAUA A CAGCCGGC	5805	GCCGGCTG GGCTAGCTACAACGA TATCCCCG	14554
5419	GGAUAACA G CCGGCUUC	5806	GAAGCCGG GGCTAGCTACAACGA TGTTATCC	14555
5415	AACAGCCG G CUUCCCGG	5807	CCGGGAAG GGCTAGCTACAACGA CGGCTGTT	14556
5406	CUUCCCGG A CAAGAUGA	5808	TCATCTTG GGCTAGCTACAACGA CCGGGAAG	14557
5401	CGGACAAG A UGAUUCUG	5809	CAGAATCA GGCTAGCTACAACGA CTTGTCCG	14558
5398	ACAAGAUG A UUCUGCCC	5810	GGGCAGAA GGCTAGCTACAACGA CATCTTGT	14559
5393	AUGAUUCU G CCCACAAU	5811	ATTGTGGG GGCTAGCTACAACGA AGAATCAT	14560
5389	UUCUGCCC A CAAUGACC	5812	GGTCATTG GGCTAGCTACAACGA GGGCAGAA	14561
5386	UGCCCACA A UGACCACG	5813	CGTGGTCA GGCTAGCTACAACGA TGTGGGCA	14562
5383	CCACAAUG A CCACGCUG	5814	CAGCGTGG GGCTAGCTACAACGA CATTGTGG	14563
5380	CAAUGACC A CGCUGCCU	5815	AGGCAGCG GGCTAGCTACAACGA CATTGTGG	14564
5378	AUGACCAC G CUGCCUGU	5816	ACAGGCAG GGCTAGCTACAACGA GGTCATTG ACAGGCAG GGCTAGCTACAACGA GTGGTCAT	
5375	ACCACGCU G CCUGUCGU			14565
33/3	ACCACGCO G CCOGOCGO	5817	ACGACAGG GGCTAGCTACAACGA AGCGTGGT	14566

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5356	5371	CGCUGCCU G UCGUCAGG	5818	CCTGACGA GGCTAGCTACAACGA AGGCAGCG	14567
S156	5368	UGCCUGUC G UCAGGCAA	5819	TTGCCTGA GGCTAGCTACAACGA GACAGGCA	14568
5356	5363	GUCGUCAG G CAAUACGC	5820	GCGTATTG GGCTAGCTACAACGA CTGACGAC	14569
5355 GGCABURG G CIGULCAGA 5823 TETURACCG GGCTAGCTRCARCIA GTATTGCC 14573 5347 CGGUCAGA G CUGCCAGG 5826 AGCTCTGA GGCTAGCTRCARCGA CGCGTATT 14573 5344 UCAGAGGU G CUGCCAGG 5826 CCTTGCTGG GGCTAGCTRCARCGA TCTGACCG 14574 5344 UCAGAGGU G CCAGGACG 5826 CCTTGCTGG GGCTAGCTRCARCGA TCTGACCG 14575 5348 UCACCAGG A CGCCACCU 5827 AGGTGGG GGCTAGCTRCARCGA ACCTCTGCA 14575 5338 CUGCCAGG A CGCACCU 5827 AGGTGGG GGCTAGCTRCARCGA CCTGGCG 14576 5338 GCCAGGAC G CCACCUAC 5828 GTAGGTGG GGCTAGCTRCARCGA GTCCTGGC 14577 5333 AGGACGC A CCUACUAG 5829 CTAGTAGG GGCTAGCTRCARCGA GTCCTGGC 14577 5333 AGGACGCC A CCUACUAG 5829 CTAGTAGG GGCTAGCTRCARCGA GTCCTGGC 14578 5329 CGCCACCUA CUAGCACC 5830 GGTGCTTG GGCTAGCTRCARCGA AGGTGGG 14579 5325 ACCUACUA G CACCCAGG 5831 CCTTGGTG GGCTAGCTRCARACGA AGGTGGG 14579 5325 ACCUACUA G CACCCAGG 5831 CCTTGGTG GGCTAGCTRCARACGA AGGTGGT 14581 5321 CACCCAGG G UGCUGGIG 5832 CACCCAGG GGCTAGCTRCARACGA CTGGTGC 14581 5321 ACCUACUA G CUCCAGG 5833 CACCAGG GGCTAGCTACARACGA CTGGTGC 14582 5321 ACCUACUA G CUGCAGG 5833 CACCAGG GGCTAGCTACARACGA CTGGGT 14583 5321 AGGUCGG G UGACCACC 5836 GGTAGCTACACACGA CTGGGT 14583 5321 ACCUACUA G CUGCAGG 5836 GGTAGCTACACACGA CACCAGCA 14585 5329 ACGUCGAG G UGACCACC 5836 GGTAGCTACACACGA CACCAGCA 14585 5330 UGCUGGUG A CGACCUCC 5836 GGAGGTCG GGCTAGCTACACACGA CACCAGCA 14586 5293 CCAGGUCA G CCGACAUG 5838 CTGGCTGA GGCTAGCTACACACGA CTGCACCA 14586 5293 CCAGGUCA G CCGACAUG 5838 CTGGCTGA GGCTAGCTACACACGA CTGCACCA 14586 5293 CCAGGUCA G CCGACAUG 5840 CATCCACG GGCTAGCTACACACGA CTGCACCA 14586 5294 CAGCCCAG A UGCALGUA 5841 CATCCACG GGCTAGCTACACACGA CTGCACCA 14586 5295 CCAGGUCA G CAUGCAUG 5841 CATCCACG GGCTAGCTACACACGA CTGCACCA 14586 5296 CUGCAGGG A UGCAUCUG 5841 CATCCACG GGCTAGCTACACACGA CTGCACCA 14589 5297 UGCAUGUC A UGCAUGU 5842 AGGCTGCAC GGCTAGCTACACCA CGCACTAC GGCT	5360	GUCAGGCA A UACGCGGU	5821	ACCGCGTA GGCTAGCTACAACGA TGCCTGAC	14570
5355 GGCABURC G CIGUICAGA 5823 TCTGROCTG GICTRACTROLACGA GTATTGCC 14572 5353 ANIACGCG G UCAGAGCU 5824 AGCTCTGA GGCTAGCTROLACGA CUCGTATT 14573 5344 UCAGAGCU G CURCCAGG 5825 CCTGGCAG GGCTAGCTROLACGA TCTGACCG 14574 5344 UCAGAGCU G CCAGGACG 5826 CCTCCTGG GGCTAGCTROLACGA TCTGACCG 14575 5348 UCACAGAG C GCCACCU 5827 AGGTGGC GGCTAGCTRACACGA ACCTGCCAG 14576 5338 GUCCAGGA C GCCACCU 5827 AGGTGGC GGCTAGCTRACACAGA TCTGACCG 14576 5338 GCCAGGAC G CCACCUAC 5828 GTAGGTGG GGCTAGCTRACACGA GTCCTGGC 14577 5333 AGGACGC A CUACUAC 5829 CTRATAGG GGCTAGCTRACACGA GTCCTGGC 14578 5329 CGCCACCU A CUACUAC 5829 CTRATAGG GGCTAGCTRACACGA AGGTGCG 14577 53229 CGCCACCU A CUACUAC 5828 GTAGGTGG GGCTAGCTRACACGA AGGTGCGG 14579 53225 ACCUACUA G CACCCAGG 5831 CCTGGGTG GGCTAGCTRACACGA AGGTGCG 14579 53226 ACCUACUA G CACCCAGG 5831 CCTGGGTG GGCTAGCTRACACGA AGGTGCG 14581 53217 GCACCAG G UGCUGGUG 5833 CACCAGG GGCTAGCTRACACGA CTGGTGC 14581 53218 ACCUACUA G CACCCAGG 5831 CCTGGGTG GGCTAGCTRACACGA CTGGTGC 14582 53219 ACCUACAG G UGCUGGUG 5833 CACCAGG GGCTAGCTRACACGA CTGGTGC 14583 53311 AGGUCCU G CUACGACC 5836 GGTGGTCA GGCTAGCTRACACGA CTGGTGC 14584 53312 ACCUACAG G UGCUGGUG 5833 GGTGGTCA GGCTAGCTRACACGA CACCACCA 14585 5336 UGCUGGUG A CGACCUCC 5836 GGTGGTCA GGCTAGCTRACACGA CACCACCA 14585 5305 UGCUGGG A CCCCAGG 5837 CCTGGAG GGCTAGCTRACACGA CACCACCA 14585 5293 CCACAGUC G CCCACAUG 5839 CATCTCCG GGCTAGCTCACACGA CTGACCAC 14586 5293 CCACGGUC G CCCACAUG 5839 CATCTCCG GGCTAGCTCACACGA CTGACCTA 14586 5293 CCACGGUC G CCCACAUG 5839 CATCTCCG GGCTAGCTCACACGA CTGACCTA 14587 5293 CCACGUCA G CCACAUG 5840 CATCCACG GGCTAGCTACACACGA CTGACCTA 14587 5293 CACGUCCA G CAUGUCAU 5841 GACATCCA GGCTAGCTACACAGA CTGACCTA 14587 5293 CACGUCCA G CAUGUCAU 5842 CATCTCCAC GGCTAGCTACACACGA CTGACCTA 14588 5293 CACGUCCA G CAUGUCAU 5842 CACCACGG GGCTAGC	5358	CAGGCAAU A CGCGGUCA	5822	TGACCGCG GGCTAGCTACAACGA ATTGCCTG	14571
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5347 CGGUCAGA G CUGCCAGG 5825 CCTGGCAG GGCTAGCTACAACGA TCTGACCG 14574		AAUACGCG G UCAGAGCU	5824		
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5287 CAGCCGAC A UGCAUGUC 5841 GACATGCA GGCTAGCTACAACGA GTCGGCTG 14590 5285 GCCGACAU G CAUGUCAU 5842 ATGACATG GGCTAGCTACAACGA ATGTCGGC 14591 5283 CGACAUGC A UGUCAUGA 5843 TCATGACA GGCTAGCTACAACGA ATGCATTC 14592 5281 ACAUGCAU G UCAUGAUG 5844 CATCATGA GGCTAGCTACAACGA ATGCATT 14593 5278 UGCAUGUC A UGAUGUAU 5845 ATACATCA GGCTAGCTACAACGA CATGCAT 14594 5275 AUGUCAUG A UGUAUUUG 5846 CAAATACA GGCTAGCTACAACGA ATCATGAC 14595 5273 GUCAUGAU G UAUUUGGU 5847 ACCAAATA GGCTAGCTACAACGA ATCATGAT 14595 5271 CAUGAUGU A UUUGGUU 5848 TAACCAAA GGCTAGCTACAACGA ACCATATC 14597 5266 UGUAUUUG G UUAUGGGG 5849 CCCCATAA GGCTAGCTACAACGA ACCATATCA 14597 5266 UGUAUGGG 14591 5851 CTCACACA GGCTAGCTACAACGA ACCATATA 14599 5258 GUUAUGGG 14592 5851 CTCACACA GGCTAGCTACAACGA ACCACTATA 14601 5243 HUAUGGGG 14602 5852			5839	CATGTCGG GGCTAGCTACAACGA TGACCTGG	14588
5285 GCCGACNU G CAUGUCAU 5842 ATGACATG GGCTAGCTACAACGA ATGTCGGC 14591 5283 CGACAUGC A UGUCAUGA 5843 TCATGACA GGCTAGCTACAACGA GCATGTCG 14592 5281 ACAUGCAU G UCAUGAUG 5844 CATCATGA GGCTAGCTACAACGA AGCATGCA 14592 5278 UGCAUGUC A UGUGUAU 5845 ATACATCA GGCTACCAACGA GACATGCA 14594 5275 AUGUCAUG A UGUAUUUG 5846 CAAATACA GGCTAGCTACAACGA CATGACT 14595 5273 GUCAUGAU G UAUUUGGU 5847 ACCAAATA GGCTAGCTACAACGA ACACTACTG 14596 5271 CAUGABUGU A UUUGGUG 5849 CCCCATAA GGCTAGCTACAACGA CACAATAC 14596 5266 UGUAUUUG G UUAUGGGG 5849 CCCCATAA GGCTAGCTACAACGA CACAATAC 14598 5263 AUUUGGUU A UGGGGGUG 5850 ACACCCCA GGCTAGCTACAACGA ACCCATAC 14600 5254 UUGGGGUG G UGUGAGG 5851 CTCACACA GGCTAGCTACAACGA ACCCCATA 14601 5255 UAUGGGUG G UGAGGGG 5852 CCCTCACA GGCTAGCTACAACGA ACCCCATA 14601 5240 UGGGGUG G UGAGGGG 5853 CACCCTCA GGCTAGCTACAACGA ACCCCCA <td>5289</td> <td>GUCAGCCG A CAUGCAUG</td> <td>5840</td> <td>CATGCATG GGCTAGCTACAACGA CGGCTGAC</td> <td>14589</td>	5289	GUCAGCCG A CAUGCAUG	5840	CATGCATG GGCTAGCTACAACGA CGGCTGAC	14589
5283 CGACAUGC A UGUCAUGA 5843 TCATGACA GGCTAGCTACAACGA GCATGTCG 14592 5281 ACAUGCAU G UCAUGAUG 5844 CATCATGA GGCTAGCTACAACGA ATGCATT 14593 5278 UGCAUGUC A UGAUGUNU 5845 ATACATCA GGCTAGCTACAACGA ATGCATCA 14594 5275 AUGUCAUG A UGAUGUUG 5846 CAAATACA GGCTAGCTACAACGA ATCACGA 14595 5273 GUCAUGAU G UAUUUGGU 5847 ACCAAATA GGCTAGCTACAACGA ACATCATC 14596 5271 CAUGAUGU A UGUGGGG 5849 CCCCATAA GGCTAGCTACAACGA ACATCATC 14597 5266 UGUAUUGG U A UGGGGUGU 5850 ACACCCCA GGCTAGCTACAACGA ACACAAAT 14599 5258 GUUAUGGG G UGUGGAG 5851 CTCACACA GGCTAGCTACAACGA ACCCCATA 14600 5256 UAUGGGU G UGAGGGG 5851 CTCACACA GGCTAGCTACAACGA ACCCCATA 14601 5254 UGAGGGUG G UGACAUCA 5853 CACCCTCA GGCTAGCTACAACGA ACCCCCA 14601 5245 UGAGGGUG A CAUCAUUU 5855 ACACCACA GGCTACCAACGA CCTCCACA 14603 5243 AGGGUGCA A UCAUUUG 5855 CAAAATGA GGCTAGCTACAACGA CTCACACA <td>5287</td> <td>CAGCCGAC A UGCAUGUC</td> <td>5841</td> <td>GACATGCA GGCTAGCTACAACGA GTCGGCTG</td> <td>14590</td>	5287	CAGCCGAC A UGCAUGUC	5841	GACATGCA GGCTAGCTACAACGA GTCGGCTG	14590
5281 ACAUGCAU G UCAUGAUG 5844 CATCATGA GGCTAGCTACAACGA ATGCATGT 14593 5278 UGCAUGUC A UGAUGUAU 5845 ATACATCA GGCTAGCTACAACGA GACATGCA 14594 5275 AUGUCAUG A UGUAUUUG 5846 CAAATACA GGCTAGCTACAACGA CATGACTA 14596 5273 GUCAUGAU G UAUUUGGU 5847 ACCAAATA GGCTAGCTACAACGA ATCATGA 14596 5271 CAUGAUGU A UUUGGUUA 5848 TAACCAAA GGCTAGCTACAACGA ACATCATG 14597 5266 UGUAUUUG G UUAUGGG 5849 CCCCATAA GGCTAGCTACAACGA CAATACA 14598 5263 AUUUGGUU A UGGGGUGA 5851 CTCACACA GGCTAGCTACAACGA CACCAAAT 14599 5256 GUAUUGGG U GUGUGAG 5851 CTCACACA GGCTAGCTACAACGA ACCCAATA 14601 5256 UAUUGGGU G UGUGAGG 5852 CCCTCACA GGCTAGCTACAACGA ACCCCCATA 14601 5256 UAUUGGGU G UGAGAGG 5853 CACCCTCA GGCTACCAACGA ACCCCCATA 14601 5248 GUGUGAGG G UGACAUCA 5854 TGATGTCA GGCTAGCTACAACGA CCCCCCATA 14602 5244 UGAGGUGA A UCAUUUU 5855 AAATGATG GGCTAGCTA	5285	GCCGACAU G CAUGUCAU	5842	ATGACATG GGCTAGCTACAACGA ATGTCGGC	14591
5278 UGCAUGUC A UGAUGUAU 5845 ATACATCA GGCTACAACGA GACATGCA 14594 5275 AUGUCAUG A UGUAUUUG 5846 CAAATACA GGCTACAACGA CATGACAT 14595 5273 GUCAUGAU G UAUUUGGU 5847 ACCAAATA GGCTACAACGA ATCATGAC 14596 5271 CAUGAUGU A UUUGGUA 5848 TAACCAAA GGCTACACACGA ACATATG 14597 5266 UGUAUUUG G UUAUGGGG 5849 CCCCATAA GGCTACAACGA ACAAATA 14598 5263 AUUUGGUU A UGGGGUGU 5850 ACACCCCA GGCTACAACGA AACCAAAT 14599 5258 GUUAUGGG G UGUGAGG 5851 CTCACACA GGCTACAACGA CACCATA 14600 5256 UAUGGGGU G UGAGGGG 5852 CCCCTCACA GGCTACAACGA ACACCCCA 14601 5256 UAUGGGGU G UGAGGGU G 5853 CACCTCA GGCTACAACGA CCTCACAC 14601 5248 GUGUGAGG G UGACAUCA 5854 TGATGTCACAACGA CCTCACAC 14601 5249 UGAGGGUG A CAUCAUUUU 5855 AAATGATG GGCTACAACGA CACCCCA 14604 5243 AGGUGACA A UCAUUUUG 5856 CAAAATGA GGCTACAACGA GATGTCACACGA CACACCCTCA 14605 5233	5283	CGACAUGC A UGUCAUGA	5843	TCATGACA GGCTAGCTACAACGA GCATGTCG	14592
5275 AUGUCAUG A UGUAUUUG 5846 CAAATACA GGCTACAACGA CATGACAT 14595 5273 GUCAUGAU G UAUUUGGU 5847 ACCAAATA GGCTACAACGA ATCATGAC 14596 5271 CAUGAUGU A UUUGGUU 5848 TAACCAAA GGCTACACACGA ATCATGAC 14597 5266 UGUAUUUG G UUAUUGGG 5849 CCCCATAA GGCTACAACGA AACCAAATACA 14598 5263 AUUUUGGU A UGGGGUGU 5850 ACACCCCA GGCTAGCTACAACGA AACCAAAT 14599 5258 GUUAUGGG G UGUGAGG 5851 CTCACACA GGCTAGCTACAACGA ACCAACAA 14500 5256 UAUGGGGU G UGUGAGG 5852 CCCCTCACA GGCTACAACAAACAA ACCACCAA 14600 5254 UGGGGUGU G UGACAUCA 5853 CACCCTCA GGCTACAACAAAAAACAAACAAAAACAAACAAACAAAAAAAA	5281	ACAUGCAU G UCAUGAUG	5844	CATCATGA GGCTAGCTACAACGA ATGCATGT	14593
5273 GUCAUGAU G UAUUUGGU 5847 ACCAAATA GGCTAGCTACAACGA ATCATGAC 14596 5271 CAUGAUGU A UUUGGUUA 5848 TAACCAAA GGCTAGCTACAACGA ACATCATG 14597 5266 UGUAUUUG G UUAUGGGG 5849 CCCCATAA GGCTAGCTACAACGA CAAATACA 14598 5263 AUUUGGU A UGGGGUGU 5850 ACACCCCA GGCTAGCTACAACGA ACCAAAT 14599 5258 GUUAUGGG G UGUGGAG 5851 CTCACACA GGCTAGCTACAACGA ACCCAATA 14601 5256 UAUGGGGU G UGUGGAG 5852 CCCTCACA GGCTAGCTACAACGA ACCCCATA 14601 5256 UAUGGGGU G UGAGGGUG 5853 CACCCTCA GGCTAGCTACAACGA ACCCCCATA 14601 5254 UGGGGUG G UGACAUCA 5854 TGATGTCA GGCTAGCTACAACGA ACCCCCA 14602 5248 GUGAGGU G A CAUCAUUU 5855 AAATGATG GCTAGCTACAACGA CACCCCA 14603 5243 AGGGUGC A UCAUUUUG S855 AAATGATG GCTAGCTACAACGA CACCCCTA 14604 5244 GUGACAUC A UUUUGGAC 5857 GTCCAAAA GGCTAGCTACAACGA CACCACCA 14607 5233 CAUUUUGGAC 5857 GTCAGAGACGA CACCACCA 14607	5278	UGCAUGUC A UGAUGUAU	5845	ATACATCA GGCTAGCTACAACGA GACATGCA	14594
5271 CAUGAUGU A UUUGGUUA 5848 TAACCAAA GGCTAGCTACAACGA ACATCATG 14597 5266 UGUAUUUG G UUAUGGGG 5849 CCCCATAA GGCTAGCTACAACGA CAAATACA 14598 5263 AUUUGGU A UGGGGUGU 5850 ACACCCCA GGCTAGCTACAACGA AACCAAAT 14599 5258 GUUAUGGG G UGUGAAG 5851 CTCACACA GGCTAGCTACAACGA ACCCATAA 14600 5256 UAUGGGGU G UGUGAGGG 5852 CCCTCACA GGCTAGCTACAACGA ACCCCATA 14601 5254 UGGGGUGU G UGACGGUG 5853 CACCCTCA GGCTAGCTACAACGA ACCCCCA 14602 5248 GUGUGAGG G UGACAUCA 5854 TGATGTCA GGCTAGCTACAACGA ACCCCCTA 14603 5245 UGAGGGUG A CAUCAUUU 5855 AAATGATG GGCTAGCTACAACGA CACCCTCA 14604 5243 AGGGUGAC A UCAUUUG 5856 CAAAATGA GGCTAGCTACAACGA GTCACACT 14605 5240 GUGACAUC A UUUUGGAC 5857 GTCCAAAA GGCTAGCTACAACGA GATGCCA 14607 5233 CAUUUUGG A CGCUCUU 5858 AGGAGCCG GGCTAGCTACAACGA CCAAATG 14607 5223 GGCUCCUA G CCUAUACA 5860 TGTATAGG GGCTAGCTACAACGA AGGCTAGG </td <td>5275</td> <td>AUGUCAUG A UGUAUUUG</td> <td>5846</td> <td>CAAATACA GGCTAGCTACAACGA CATGACAT</td> <td>14595</td>	5275	AUGUCAUG A UGUAUUUG	5846	CAAATACA GGCTAGCTACAACGA CATGACAT	14595
5266 UGUAUUUG G UUAUGGG 5849 CCCCATAA GGCTAGCTACAACGA CAAATACA 14598 5263 AUUUGGUU A UGGGGUGU 5850 ACACCCCA GGCTAGCTACAACGA AACCAAAT 14599 5258 GUUAUGGG G UGUGUGAG 5851 CTCACACA GGCTAGCTACAACGA ACCACCA 14600 5256 UAUGGGU G UGUGAGG 5852 CCCTCACA GGCTAGCTACAACGA ACCACCCA 14601 5254 UGGGGUGU G UGAGGUG 5853 CACCCTCA GGCTAGCTACAACGA ACCACCCA 14602 5248 GUGUGAGG G UGACAUCA 5854 TGATGTCA GGCTAGCTACAACGA ACCACCCA 14603 5248 GUGUGAGG A CAUCAUUU 5855 AAATGATG GGCTAGCTACAACGA CCCCTCA 14604 5243 AGGGUGAC A UCAUUUU 5855 CAAAATGA GGCTAGCTACAACGA CACCCCT 14605 5240 GUGACAUC A UUUUGGAC 5857 GTCCAAAA GGCTAGCTACAACGA GATGTCAC 14605 5233 CAUUUUGG A CGCUUAGC 5858 AGGAGCCG GGCTAGCTACAACGA CGACAAATG 14607 5223 GGCUCCUA G CCUAUACA 5860 TGTATAGG GGCTAGCTACAACGA TAGGACC 14609 5219 CCUAGCCU A UACAGCAG 5861 TGTATAGG GGCTAGCTACAACGA AGGCTAGG <td>5273</td> <td>GUCAUGAU G UAUUUGGU</td> <td>5847</td> <td>ACCAAATA GGCTAGCTACAACGA ATCATGAC</td> <td>14596</td>	5273	GUCAUGAU G UAUUUGGU	5847	ACCAAATA GGCTAGCTACAACGA ATCATGAC	14596
5263 AUUUGGUU A UGGGGUGU 5850 ACACCCCA GGCTAGCTACAACGA AACCAAAT 14599 5258 GUUAUGGG G UGUGUAG 5851 CTCACACA GGCTAGCTACAACGA ACCCATAAC 14600 5256 UAUGGGGU G UGUGAGGG 5852 CCCTCACA GGCTAGCTACAACGA ACCCCCATA 14601 5254 UGGGGUGU G UGAGGGUG 5853 CACCCTCA GGCTAGCTACAACGA ACACCCCA 14602 5248 GUGUGAGG G UGACAUCA 5854 TGATGTCA GGCTACAACGA CCTCCACAC 14603 5245 UGAGGGUG A CAUCAUUU 5855 AAATGATG GGCTACAACGA CACCCTCA 14604 5243 AGGGUGAC A UCAUUUU 5855 AAATGATG GGCTAGCTACAACGA CACCCCTA 14604 5240 GUGACAUC A UUUUGGAC 5857 GTCCAAAA GGCTAGCTACAACGA GATGTACA 14606 5233 CAUUUUGG A CGGCUCCU 5858 AGGAGCCG GGCTAGCTACAACGA CGAAATG 14607 5223 GGCUCCUA G CCUAUACA 5860 TGTTATAGG GGCTAGCTACAACGA CGTCCAAA 14608 5223 GGCUCCUA G CCUAUACA 5860 TGTTATAGG GGCTAGCTACAACGA AGCTACAACGA CGACCCC CAACAGGA CCCCAGAGAGAACAACAACAACAAAACAAAC	5271	CAUGAUGU A UUUGGUUA	5848	TAACCAAA GGCTAGCTACAACGA ACATCATG	14597
5258 GUUAUGGG G UGUGUGAG 5851 CTCACACA GGCTAGCTACAACGA CCCATAAC 14600 5256 UAUGGGGU G UGUGAGGG 5852 CCCTCACA GGCTAGCTACAACGA ACCCCATA 14601 5254 UGGGGUGU G UGAGGGUG 5853 CACCCTCA GGCTAGCTACAACGA ACACCCCA 14602 5248 GUGUGAGG G UGACAUCA 5854 TGATGTCA GGCTAGCTACAACGA CCCCCCA 14603 5245 UGAGGGUG A CAUCAUUU 5855 AAATGAT GGCTAGCTACAACGA CACCCCT 14604 5243 AGGGUGAC A UCAUUUUG 5856 CAAAATGA GGCTAGCTACAACGA GTCACCCT 14605 5240 GUGACAUC A UUUUGGAC 5857 GTCCAAAA GGCTAGCTACAACGA GATGTCAC 14606 5233 CAUUUUGG A CGGCUCCU 5858 AGGAGCCG GGCTAGCTACAACGA CCAAAATG 14607 5233 GGCUCCUA G CUCCUAGC 5859 GCTAGGGAGCCTACAACGA CGTCCAAA 14608 5223 GGCUCCUA G CUCUACA 5860 TGTATAGG GGCTAGCTACAACGA AGGCTACG 14609 5219 CCUAGCCU A UACAGCAG 5861 CTGCTGTA GGCTACCAACAGA AGGCTAGG 14610 5217 UAGCCUAU A CAGCAGGG 5862 CCCTGCTG GGCTAGCTACAACGA ATGGCTA	5266	UGUAUUUG G UUAUGGGG	5849	CCCCATAA GGCTAGCTACAACGA CAAATACA	14598
Description of the state of the	5263	AUUUGGUU A UGGGGUGU	5850	ACACCCCA GGCTAGCTACAACGA AACCAAAT	14599
5254 UGGGGUGU G UGAGGGUG 5853 CACCCTCA GGCTAGCTACAACGA ACACCCCA 14602 5248 GUGUGAGG G UGACAUCA 5854 TGATGTCA GGCTAGCTACAACGA CCTCACC 14603 5245 UGAGGGUG A CAUCAUUU 5855 AAATGATG GGCTAGCTACAACGA CACCCTCA 14604 5243 AGGGUGAC A UCAUUUUG 5856 CAAAATGA GGCTACCAACGA GTCACCCT 14605 5240 GUGACAUC A UUUUGGAC 5857 GTCCAAAA GGCTACCAACGA GTCACACGA CTCACACGA 14607 5233 CAUUUUGG A CGGCUCCU 5858 AGGAGCCG GGCTAGCTACAACGA CCAAAATG 14607 5230 UUUGGACG G CUCCUAGC 5859 GCTAGGAG GGCTACCAACGA CGTCCAAA 14608 5223 GGCUCCUA G CCUAUACA 5860 TGTATAGG GGCTAGCTACAACGA TAGGACC 14609 5219 CCUAGCCU A UACAGCAG 5861 CTGCTGTA GGCTAGCTACAACGA AGGCTAGG 14610 5217 UAGCCUAU A CAGCAGG 5862 CCCTGCTG GGCTAGCTACAACGA ATGGCTA 14611 5214 CCUAUACA G CAGGGUG 5863 CACCCTG GGCTAGCTACAACGA ATGATCAACGA TGTATAGG 14612 5208 CAGCAGGG UUUGGCC 5864 GGCCAACA GGCTAGCTACAACG	5258	GUUAUGGG G UGUGUGAG	5851	CTCACACA GGCTAGCTACAACGA CCCATAAC	14600
5248GUGUGAGG G UGACAUCA5854TGATGTCA GGCTAGCTACAACGA CCTCACAC146035245UGAGGGUG A CAUCAUUU5855AAATGATG GGCTAGCTACAACGA CACCCTCA146045243AGGGUGAC A UCAUUUUG5856CAAAATGA GGCTAGCTACAACGA GTCACCCT146055240GUGACAUC A UUUUGGAC5857GTCCAAAA GGCTAGCTACAACGA GATGTCAC146065233CAUUUUGG A CGGCUCCU5858AGGAGCCG GGCTAGCTACAACGA CCAAAATG146075230UUUGGACG G CUCCUAGC5859GCTAGGAG GGCTAGCTACAACGA CGTCCAAA146085223GGCUCCUA G CCUAUACA5860TGTATAGG GGCTAGCTACAACGA TAGGAGCC146095219CCUAGCCU A UACAGCAG5861CTGCTGTA GGCTAGCTACAACGA AGGCTAGG146105217UAGCCUAU A CAGCAGGG5862CCCTGCTG GGCTAGCTACAACGA ATAGGCTA146115214CCUAUACA G CAGGGGUG5863CACCCCTG GGCTAGCTACAACGA TGTATAGG146125208CAGCAGGG G UGUUGGCC5864GGCCAACA GGCTAGCTACAACGA CCCTGCTG146135206GCAGGGGU G UUGGCCC5865CGGGCCAAC GGCTAGCTACAACGA ACCCCTGC146145202GGGUGUUG G CCCGUGUA5866TACACGGG GGCTAGCTACAACGA CAACACCC146155198GUUGGCCC G UGUAGCGU5867ACGCTACA GGCTAGCTACAACGA ACGGCCAA146165196UGGCCCGU G UAGCGUU5869ACGCTACG GGCTAGCTACAACGA ACGGGCCA146175193CCCGUGUA G CGUAGGCU5869AGCCTACG GGCTAGCTACAACGA TACACGG146185191CGUGUAGC G UAGGCUUU5870AAAGCCTA GGCTAGCTACAACGA CTACGCTA146205181	5256	UAUGGGGU G UGUGAGGG	5852	CCCTCACA GGCTAGCTACAACGA ACCCCATA	14601
5248 GUGUGAGG G UGACAUCA 5854 TGATGTCA GGCTAGCTACAACGA CCTCACAC 14603 5245 UGAGGGUG A CAUCAUUU 5855 AAATGATG GGCTAGCTACAACGA CACCCTCA 14604 5243 AGGGUGAC A UCAUUUUG 5856 CAAAATGA GGCTAGCTACAACGA GTCACCCT 14605 5240 GUGACAUC A UUUUGGAC 5857 GTCCAAAA GGCTAGCTACAACGA GATGTCAC 14606 5233 CAUUUUGG A CGGCUCCU 5858 AGGAGCCG GGCTAGCTACAACGA CCAAAATG 14607 5230 UUUGGACG G CUCCUAGC 5859 GCTAGGAG GGCTAGCTACAACGA CGTCCAAA 14608 5223 GGCUCCUA G CCUAUACA 5860 TGTATAGG GGCTAGCTACAACGA TAGGAGCC 14609 5219 CCUAGCCU A UACAGCAG 5861 CTGCTGTA GGCTAGCTACAACGA AGGCTAGG 14610 5217 UAGCCUAU A CAGCAGGG 5862 CCCTGCTG GGCTAGCTACAACGA ATAGGCTA 14611 5214 CCUAUACA G CAGGGGUG 5863 CACCCCTG GGCTAGCTACAACGA TGTATAGG 14612 5208 CAGCAGGG G UGUUGGCC 5864 GGCCAACA GGCTAGCTACAACGA CCCTGCT G 14613 5206 GCAGGGGU G UUGGCCC 5865 CGGGCCAAG GGCTACAACGA CCACCC	5254	UGGGGUGU G UGAGGGUG	5853	CACCCTCA GGCTAGCTACAACGA ACACCCCA	14602
5245 UGAGGGUG A CAUCAUUU 5855 AAATGATG GGCTAGCTACAACGA CACCCTCA 14604 5243 AGGGUGAC A UCAUUUUG 5856 CAAAATGA GGCTAGCTACAACGA GTCACCCT 14605 5240 GUGACAUC A UUUUGGAC 5857 GTCCAAAA GGCTAGCTACAACGA GATGTCAC 14606 5233 CAUUUUGG A CGGCUCCU 5858 AGGAGCCG GGCTAGCTACAACGA CCAAAATG 14607 5230 UUUGGACG G CUCCUAGC 5859 GCTAGGAG GGCTAGCTACAACGA CGTCCAAA 14608 5223 GGCUCCUA G CCUAUACA 5860 TGTATAGG GGCTAGCTACAACGA TAGGAGCC 14609 5219 CCUAGCCU A UACAGCAG 5861 CTGCTGTA GGCTAGCTACAACGA AGGCTAGG 14610 5217 UAGCCUAU A CAGCAGGG 5862 CCCTGCTG GGCTAGCTACAACGA ATAGGCTA 14611 5214 CCUAUACA G CAGGGGUG 5863 CACCCCTG GGCTAGCTACAACGA CCCTGCTG 14612 5208 CAGCAGGG G UGUUGGCC 5864 GGCCAACA GGCTAGCTACAACGA CCCTGCTG 14613 5206 GCAGGGGU G UUGGCCC 5865 CGGGCCAA GGCTAGCTACAACGA CACACCC 14614 5202 GGGUGUUG G CCCGUGUA 5866 TACACGGG GGCTAGCTACAACGA CAACA	5248	GUGUGAGG G UGACAUCA	5854		I
AGGGUGAC A UCAUUUUG 5856 CAAAATGA GGCTAGCTACAACGA GTCACCCT 14605 5240 GUGACAUC A UUUUGGAC 5857 GTCCAAAA GGCTAGCTACAACGA GATGTCAC 14606 5233 CAUUUUGG A CGGCUCCU 5858 AGGAGCCG GGCTAGCTACAACGA CCAAAATG 14607 5230 UUUGGACG G CUCCUAGC 5859 GCTAGGAG GGCTAGCTACAACGA CGTCCAAA 14608 5223 GGCUCCUA G CCUAUACA 5860 TGTATAGG GGCTACAACGA TAGGAGCC 14609 5219 CCUAGCCU A UACAGCAG 5861 CTGCTGTA GGCTACAACGA AGGCTAGG 14610 5217 UAGCCUAU A CAGCAGGG 5862 CCCTGCTG GGCTAGCTACAACGA ATAGGCTA 14611 5214 CCUAUACA G CAGGGGUG 5863 CACCCCTG GGCTAGCTACAACGA ATAGGCTA 14611 5214 CCUAUACA G CAGGGGUG 5863 CACCCCTG GGCTAGCTACAACGA TGTATAGG 14612 5208 CAGCAGGG UGUUGGCC 5864 GGCCAACA GGCTAGCTACAACGA CCCTGCTG 14613 5206 GCAGGGGU G UUGGCCCG 5865 CGGGCCAA GGCTAGCTACAACGA CCCTGCT 14614 5202 GGGUGUUG G CCCGUGUA 5866 TACACGGG GGCTAGCTACAACGA CAACACCC 14615 5198 GUUGGCCC UGUAGCGU 5867 ACGCTACA GGCTAGCTACAACGA CAACACCC 14616 5196 UGGCCCGU G UAGCGUU 5867 ACGCTACA GGCTAGCTACAACGA ACGGCCA 14617 5193 CCCGUGUA G CGUAGGCU 5869 AGCCTACG GGCTAGCTACAACGA TACACGG 14618 5191 CGUGUAGC G UAGGCUUU 5870 AAAGCCTA GGCTAGCTACAACGA CTACACG 14619 5187 UAGCGUAG G CUUUAGCC 5871 GGCTAAAG GGCTACCACGA CTACACGT 14620 5181 AGGCUUUA G CCGUGUGA 5872 TCACACGG GGCTAGCTACAACGA TAAAGCCT 14621	5245	UGAGGGUG A CAUCAUUU	5855	AAATGATG GGCTAGCTACAACGA CACCCTCA	
GUGACAUC A UJUUGGAC 5857 GTCCAAAA GGCTAGCTACAACGA GATGTCAC 14606 5233 CAUUUUGG A CGGCUCCU 5858 AGGAGCCG GGCTAGCTACAACGA CCAAAATG 14607 5230 UJUUGGACG G CUCCUAGC 5859 GCTAGGAG GGCTAGCTACAACGA CGTCCAAA 14608 5223 GGCUCCUA G CCUAUACA 5860 TGTATAGG GGCTAGCTACAACGA TAGGAGCC 14609 5219 CCUAGCCU A UACAGCAG 5861 CTGCTGTA GGCTAGCTACAACGA AGGCTAGG 14610 5217 UAGCCUAU A CAGCAGGG 5862 CCCTGCTG GGCTAGCTACAACGA ATAGGCTA 14611 5214 CCUAUACA G CAGGGGUG 5863 CACCCCTG GGCTAGCTACAACGA TGTATAGG 14612 5208 CAGCAGGG G UGUUGGCC 5864 GGCCAACA GGCTAGCACAACGA CCCTGCTG 14613 5206 GCAGGGGU G UUGGCCC 5865 CGGGCCAA GGCTAGCTACAACGA ACCCCTGC 14614 5202 GGGUGUUG G CCCGUGUA 5866 TACACGGG GGCTAGCTACAACGA CAACACCC 14615 5198 GUUGGCCC G UGUAGCGU 5867 ACGCTACA GGCTAGCTACAACGA ACGGCCAAC 14616 5196 UGGCCCGU G UAGCGUUG 5868 CTACGCTA GGCTAGCTACAACGA ACGGCCCA 14617 5193 CCCGUGUA G CGUAGGCU 5869 AGCCTACG GGCTAGCTACAACGA TACACGG 14618 5191 CGUGUAGC G UAGGCUUU 5870 AAAGCCTA GGCTAGCTACAACGA CTACACGG 14619 5187 UAGCGUAG G CUUUAGCC 5871 GGCTAAAG GGCTAGCTACAACGA CTACGCTA 14620 5181 AGGCUUUA G CCGUGUGA 5872 TCACACGG GGCTAGCTACAACGA TACACGCT 14621	5243	AGGGUGAC A UCAUUUUG	5856		
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5178 CUUUAGCC G UGUGAGAC 5873 GTCTCACA GGCTAGCTACAACGA GGCTAAAG 14622	·				14621
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S171		· ····································			
5169	5176	UUAGCCGU G UGAGACAC	5874	GTGTCTCA GGCTAGCTACAACGA ACGGCTAA	14623
S161 ACACUUCCA C AUUUGAUC S877 ATCANATG GCTAGCTACAACGA GAAGTOT 1462					
					
S156					14626
S151	5161				14627
5142	5156	CACAUUUG A UCCCACGA	5879		14628
S142	5151		5880	CCCCATCG GGCTAGCTACAACGA GGGATCAA	14629
S137 GGGGUGGA G CCUGAGCC 5883 GGCTCAGG GGCTAGCTACAACGA TCCACCCC 1463:	5148	AUCCCACG A UGGGGGUG	5881	CACCCCA GGCTAGCTACAACGA CGTGGGAT	14630
S131	5142	CGAUGGGG G UGGAGCCU	5882	AGGCTCCA GGCTAGCTACAACGA CCCCATCG	14631
5125 GAGCCUGG G CGCACUGU 5885 AGTGTGG GGCTAGCTACAACGA CAGGGCTC 1463- 5123 GCCUGGG G CACACUGU 5886 ACACTGTG GGCTAGCTACAACGA CACAGGGC 1463- 5121 CCUGGGG A CACUGUGG 5887 CCACAGTG GGCTAGCTACAACGA GGCCAGG 1463- 5119 UGGCGCAC A CUGUGGCU 5888 ACCACAG GGCTAGCTACAACGA AGTGTGCA 1463- 5116 CGCACACU G UGGCUUGG 5889 CCAAGCCA GGCTAGCTACAACGA AGTGTGCA 1463- 5113 ACACUGUG G UUUGUUA 5890 ATACCAAG GGCTAGCTACAACGA CACAGCCA 1464- 5108 GUGGCUUG G UUUCUCC 5892 TGGTAGCTACAACGA ACCAACCA 1464- 5104 CUUGGUAU G CUACCAG 5892 TGGTAGCTACAACGA ACCAACCA 1464- 5101 GGUAUCAG G UAGGGGG 5893 CCTGGTAG GGCTAGCTACAACGA ACCAACCA 1464- 5010 GGUAUCAG G UAGGGGG 5893 CTCCCCTA GGCTAGCTACAACGA ACCAACCA 1464- 5067 UAGGGGAG 1404- 1404- 1404- 1404- 1404- 1404- 1404- 1404- 1404- 1404- 1404- 1404-	5137	GGGGUGGA G CCUGAGCC	5883	GGCTCAGG GGCTAGCTACAACGA TCCACCCC	14632
S123	5131	GAGCCUGA G CCCUGGCG	5884	CGCCAGGG GGCTAGCTACAACGA TCAGGCTC	14633
5121 CCUGGCGC A CAUGUGG 5887 CCACAGTG GGCTAGCTACAACGA GGCCCAGG 1463 5119 UGGCCACA A CUGUGGCU 5888 AGCCACAG GGCTAGCTACAACGA GGCGCACAU GUGGUUGG 5889 CCAGACCAU GUGGUUGG 1463 5113 ACACUGUG GUUGGUUG 5890 ATACCAAG GGCTAGCTACAACGA CACAGTC 1463 5108 GUUGGUA JUUGUCCCA 5892 TGGTAGCA AGCTAGCTACAACGA CAAGCCAC 1464 5104 CUUGGUA GUAGCAGG 5893 CCTGGTAG GGCTAGCTACAACGA ACCAGGU 1464 5101 GGUAGCAG GUAGGGAG 5893 CTACCTGA GGCTAGCTACAACGA ATGGTAGC 1464 5010 GGUAGCAG GUAGGGAG 5895 CTCCCCTA GGCTAGCTACAACGA ATGCTAGC 1464 5061 GGUAGCAG GUUGGUC 5895 GCACAGAG GGCTAGCTACAACGA AGCACAGA 1464 5077 UULUCUCU GGCAGAAAA GGCTAGCTACAACGA AGCACAGA 1464	5125	GAGCCCUG G CGCACACU	5885	AGTGTGCG GGCTAGCTACAACGA CAGGGCTC	14634
5121 CCUGGGGC A CACUGUGG 5887 CCRCAGTG GGCTAGCTACAACGA GCGCCAGG 1463 5119 UGGGCAC A CUGUGGCU 5888 AGCCACAG GGCTAGCTACAACGA GTGCGCCA 1463 5116 CGCACACU G UGGCUUGG 5889 CCAAGCCA GGCTAGCTACAACGA AGTGTTCCA 1463 5111 ACACUGUG G CUUGGUAU 5890 ATACCAAG GGCTAGCTACAACGA CAGCAC 1463 5108 GUGGCUUG G UAUGCUAC 5891 GTAGCATA GGCTAGCTACAACGA CAGCACC 1464 5104 GUGGUUGGU A UGCUACCA 5892 TGTAGCA GGCTAGCTACAACGA AGCATAC 1464 5104 CUUGGUA G CUACCAG 5893 CTACCTGG GGCTAGCTACAACGA AGCATAC 1464 5101 GGUACCAG G UAGGGGAG 5895 CTACCTGA GGCTAGCTACAACGA AGCATAC 1464 5076 GUACCAG G UAGGGGAG 5895 CTCCCCTA GGCTAGCTACAACGA AGCATAC 1464 5077 UUUCUCCU G CCUGUUG 5896 GGAGAAAA GGCTAGCTACAACGA CTCCCCTA 1464 5077 UUCUCCU G CUUGGUUC 5897 CAACAAGA GGCTAGCTACAACGA AGGACAA 1464 5078 UCCUGCUU G CUUGGGAC 5897 CAACAAGA GGCTAGCTACAACGA AGGACAA 14	5123	GCCCUGGC G CACACUGU	5886	ACAGTGTG GGCTAGCTACAACGA GCCAGGGC	14635
5119 UGGCGCAC A CUGUGGCU 5888 AGCCACAG GGCTAGCTACAACA GTGCGCCA 1463 5116 CGCACACU G UGGCUUGG 5889 CCAAGCCA GGCTAGCTACAACA ASTGTGGC 1463 5113 ACACUGUG G CUUGGUAU 5890 ATACCACAG GGCTAGCTACAACA CACAGTGT 1463 5108 GUGGCUUGU A UGCUACCA 5891 GTAGCATA GGCTAGCTACAACAA ACCAAGCA 1464 5104 GUUGGUUG C CUACCAG 5893 CTGGGTAG GGCTAGCTACAACAA ACCAGGCA 1464 5101 GGUAUGCU A CCAGGUAG 5893 CCTGGTAG GGCTACAACAA ACCAAGAA 1464 5101 GGUAUGCU A CCAGGUAG 5893 CCTGGTAG GGCTACAACAAAA AGCATACC 1464 5061 GCUACCAG G UAGGGAG 5895 CTACCTAG GGCTACAACAAAAAAAAAAAAAAAAAAAAAA		CCUGGCGC A CACUGUGG	5887		14636
5116 CGCACACU G UGGCUUGG 5889 CCAAGCCA GGCTAGCTACAACA AGTGTGCG 1463 5113 ACACUGUG G CUUGGUAU 5890 ATACCAAG GGCTAGCTACAACAC ACACTGT 1165 5108 GUGGCUUG G LAUGCUAC 5891 GTAGCATA GGCTACAACACA ACACCAC 1464 5106 GUGGUUGU A UGCUACCA 5892 TGGTAGCA GGCTAGCTACAACGA ACCAAGCC 1464 5104 CUUGGUAU G UACCAGG 5893 CCTGGTAG GGCTACCAACGA ATACCAAG 1464 5006 GCUACCAG G UACGGGAG 5895 CCCCCCTA GGCTACAACACA ATACCAACA 1464 5096 GCUACCAG G UACGGGAG 5895 CTCCCCTA GGCTACCAACACA ACCATACC 1464 5087 UAGGGAG 5895 CTCCCCTA GGCTACCAACACA ACCACACACACACACACACACACACACA			ļ		 -
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5077 UUUCUCCU G CCUGCUUG 5897 CAAGCAGG GGCTAGCTACAACGA AGGAGAAA 1464 5073 UCCUGCCU G CUUGGUCU 5898 AGACCAAG GGCTAGCTACAACGA AGGCAGA 1464 5068 CCUGCUUG G UCUGGGAC 5899 GTCCCAGA GGCTAGCTACAACGA CAAGCAGG 1464 5061 GGUCUGGG A CAAGAAGU 5900 ACTTCTTG GGCTAGCTACAACGA CCCACACC 1464 5054 GACAAGAA G UGGGCAUC 5901 GATGCCCA GGCTAGCTACAACGA CCACTTCT 1465 5050 AGAAGUGG C AUCUAUG 5902 CATAGATG GGCTAGCTACAACGA CCACTTCT 1465 5048 AAGUGGGC A UCUAUGU 5903 CACATAGA GGCTACTACAACGA AGATGCCC 1465 5042 GGCAUCUA U GUGGGUGA 5905 CTCACCCA GGCTAGCTACAACGA AGATGCCC 1465 5038 CUAUGUGG G UGAGGCCU 5906 AGGCCTCA GGCTAGCTACAACGA CCACATAC 1465 5038 CUAUGUGG G UGAAGACA 5907 TTCACAGG GGCTAACTACAACGA AGGCCTCA 1465 5029 UGAGGCCU G UGAAGAC 5909 GGAGGTG GGCTACCTACAACGA AGGCCTCA 1465 5021 GUAAGAC A CCCUCCCA 5910 TGGGAGGTG GGCTAACAACGA AGGCTTCACA	\vdash		 		14644
5073 UCCUGCCU G CUUGGUCU 5898 AGACCAAG GGCTAGCTACAACGA AGGCAGGA 1664 5068 CCUGCUUG G UCUGGGAC 5899 GTCCCAGA GGCTAGCTACAACGA CCAGAGC 1464 5061 GGUCUGGG A CAAGAAGU 5900 ACTTCTTG GGCTAGCTACAACGA CCAGACC 1464 5054 GACAAGAA G UGGGCAUC 5901 GATGCCCA GGCTAGCTACAACGA TCTTGTC 1465 5050 AGAAGUGG G CAUCUAU 5902 CATAGATG GGCTAGCTACAACGA CCACTTCT 1465 5048 AAGUGGGC A UCUAUGU 5903 CACATAGA GGCTAGCTACAACGA GCCACTTC 1465 5044 GGGCAUCU A UGUGGUGG 5904 CACCCACA GGCTAGCTACAACGA AGATGCCC 1465 5042 GCAUCUAU G UGGUGAG 5905 CTCACCCA GGCTAGCTACAACGA CCACATAG 1465 5038 CUAUGUGG G UGAGGCCU 5906 AGGCCTCA GGCTAGCTACAACGA CCACATAG 1465 5033 UGAGGCCU G UGAAGACA 5907 TTCACAGG GGCTACCTACAACGA CTCACCCA 1465 5029 UGAGGCCU G UGAAGACA 5908 TGCTTCA GGCTACCAACGA AGGCCTCA 1465 5021 GUGAAGAC A CCCCUCC 5909 GGAGGTG GGCTAACAACGA CTCACACGA CTCACACA					14645
5068 CCUGCUUG G UCUGGGAC 5899 GTCCCAGA GGCTAGCTACAACGA CAAGCAGG 1464 5061 GGUCUGGG A CAAGAAGU 5900 ACTTCTTG GGCTACAACAGA CCCAGACC 1464 5054 GACAAGAA G UGGGCAUC 5901 GATGCCA GGCTAGCTACAACGA CCACTTCT 1465 5050 AGAAGUG G CAUCUAUG 5902 CATAGAG GGCTAGCTACAACGA CCACTTCT 1465 5048 AAGUGGG A UCUAUGU 5903 CACATAGA GGCTAGCTACAACGA CCACTTCT 1465 5044 GGGCAUCU A UGUGGUG 5904 CACCCACA GGCTAGCTACAACGA AGATGCC 1465 5042 GCAUCUAU G UGAGGCCU 5906 AGGCCTCA GGCTACAACGA ATAGATGC 1465 5033 UGAUGUGG G UGAGGCCU 5906 AGGCCTCA GGCTACAACGA CTACACCA 1465 5029 UGAGGCCU G UGAAGACA 5907 TTCCACAG GGCTAGCTACAACGA CTACACCA 1465 5023 CUGUGAAG A CACCCUCC 5909 GGAGGGT GGCTACAACGA CTACACCA 1465 5021 GUGAAGAC A CCCUCCCA 5910 TGGGAGG GGCTACACACGA CTCACACGA 1465 5003 AACUCCAGA A UGGUCUG 5911 ATCTGGAG GGCTAGCTACAACGA CTGGAGT 1466 <	5077	UUUCUCCU G CCUGCUUG	5897	CAAGCAGG GGCTAGCTACAACGA AGGAGAAA	14646
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5038 CUAUGUGG UGAGGCCU 5906 AGGCCTCA GGCTAGCTACAACGA CCACATAG 1465 5033 UGGGUGAG CCUGUGAA 5907 TTCACAGG GGCTAGCTACAACGA CTCACCCA 1465 5029 UGAGGCCU GUGAAGACA 5908 TGTCTTCA GGCTAGCTACAACGA AGGCCTCA 1465 5023 CUGUGAAG A CACCCUCC 5909 GGAGGGT GGCTAGCTACAACGA CTTCACAG 1465 5021 GUGAAGAC A CUCCAGA 5910 TGGGAGGG GGCTAGCTACAACGA CTTCACAG 1465 5010 CUCCCAGA A UGGUCCUG 5912 CAGGACCA GGCTAGCTACAACGA CTTGGGAG 1466 5003 AACUCCAG A UGGUCCUG 5912 CAGGACCA GGCTAGCTACAACGA CATCTGGA 1466 4994 UGGUCCUG G CAGAAGGG 5913 TGCCAGGA GGCTAGCTACAACGA CATCTGGA 4966 4983 GAAGGGCA A CCCUGGUG 5915 CAGGGTTG GGCTAGCTACAACGA CAGGGTTG 14666 4977	5044	GGGCAUCU A UGUGGGUG	5904	CACCCACA GGCTAGCTACAACGA AGATGCCC	14653
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4871 UCGAACAU G CCCGAAGG 5946 CCTTCGGG GGCTAGCTACAACGA ATGTTCGA 1	14695
4863 GCCCGAAG G CCGCUCUC 5947 GAGAGCGG GGCTAGCTACAACGA CTTCGGGC 1	14696
4860 CGAAGGCC G CUCUCCUG 5948 CAGGAGAG GGCTAGCTACAACGA GGCCTTCG 1	14697
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4846 CUGGAGUC A CAAACCUG 5950 CAGGTTTG GGCTAGCTACAACGA GACTCCAG 1	14699
4842 AGUCACAA A CCUGUAUA 5951 TATACAGG GGCTAGCTACAACGA TTGTGACT 1	14700
4838 ACAAACCU G UAUAUGCC 5952 GGCATATA GGCTAGCTACAACGA AGGTTTGT 1	14701
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4703	CAUCHAINI A CACHGGAIL	5986	ATCGACTG GGCTAGCTACAACGA AATACATG	14735
4700	GUAUUACA G UCGAUCAC	. 5987	GTGATCGA GGCTAGCTACAACGA TGTAATAC	14736
4696	UACAGUCG A UCACCGAG	5988	CTCGGTGA GGCTAGCTACAACGA CGACTGTA	14737
4693		5989	TGACTCGG GGCTAGCTACAACGA GATCGACT	14738
<u> </u>	AGUCGAUC A CCGAGUCA	5990	GATTTTGA GGCTAGCTACAACGA TCGGTGAT	
4688	AUCACCGA G UCAAAAUC			14739
4682	GAGUCAAA A UCGCCGGU	5991	ACCGGCGA GGCTAGCTACAACGA TTTGACTC	14740
4679	UCAAAAUC G CCGGUAUA	5992	TATACCGG GGCTAGCTACAACGA GATTTTGA	14741
4675	AAUCGCCG G UAUAGCCC	5993	GGGCTATA GGCTAGCTACAACGA CGGCGATT	14742
4673	UCGCCGGU A UAGCCCGU	5994	ACGGGCTA GGCTAGCTACAACGA ACCGGCGA	14743
4670	CCGGUAUA G CCCGUCAU	5995	ATGACGGG GGCTAGCTACAACGA TATACCGG	14744
4666	UAUAGCCC G UCAUUAGA	5996	TCTAATGA GGCTAGCTACAACGA GGGCTATA	14745
4663	AGCCCGUC A UUAGAGCG	5997	CGCTCTAA GGCTAGCTACAACGA GACGGGCT	14746
4657	UCAUUAGA G CGUCUGUU	5998	AACAGACG GGCTAGCTACAACGA TCTAATGA	14747
4655	AUUAGAGC G UCUGUUGC	5999	GCAACAGA GGCTAGCTACAACGA GCTCTAAT	14748
4651	GAGCGUCU G UUGCCACG	6000	CGTGGCAA GGCTAGCTACAACGA AGACGCTC	14749
4648	CGUCUGUU G CCACGACA	6001	TGTCGTGG GGCTAGCTACAACGA AACAGACG	14750
4645	CUGUUGCC A CGACAACG	6002	CGTTGTCG GGCTAGCTACAACGA GGCAACAG	14751
4642	UUGCCACG A CAACGACG	6003	CGTCGTTG GGCTAGCTACAACGA CGTGGCAA	14752
4639	CCACGACA A CGACGUCC	6004	GGACGTCG GGCTAGCTACAACGA TGTCGTGG	14753
4636	CGACAACG A CGUCCCCG	6005	CGGGGACG GGCTAGCTACAACGA CGTTGTCG	14754
4634	ACAACGAC G UCCCCGCU	6006	AGCGGGGA GGCTAGCTACAACGA GTCGTTGT	14755
4628	ACGUCCCC G CUGGCCGG	6007	CCGGCCAG GGCTAGCTACAACGA GGGGACGT	14756
4624	CCCCGCUG G CCGGUAUG	6008	CATACCGG GGCTAGCTACAACGA CAGCGGGG	14757
4620	GCUGGCCG G UAUGACGG	6009	CCGTCATA GGCTAGCTACAACGA CGGCCAGC	14758
4618	UGGCCGGU A UGACGGAC	6010	GTCCGTCA GGCTAGCTACAACGA ACCGGCCA	14759
4615	CCGGUAUG A CGGACACG	6011	CGTGTCCG GGCTAGCTACAACGA CATACCGG	14760
4611	UAUGACGG A CACGUCGA	6012	TCGACGTG GGCTAGCTACAACGA CCGTCATA	14761
4609	UGACGGAC A CGUCGAGA	6013	TCTCGACG GGCTAGCTACAACGA GTCCGTCA	14762
4607	ACGGACAC G UCGAGACC	6014	GGTCTCGA GGCTAGCTACAACGA GTGTCCGT	14763
4601	ACGUCGAG A CCCCGGUA	6015	TACCGGGG GGCTAGCTACAACGA CTCGACGT	14764
4595	AGACCCCG G UAAUACGC	6016	GCGTATTA GGCTAGCTACAACGA CGGGGTCT	14765
4592	CCCCGGUA A UACGCUAC	6017	GTAGCGTA GGCTAGCTACAACGA TACCGGGG	14766
4590	CCGGUAAU A CGCUACAG	6018	CTGTAGCG GGCTAGCTACAACGA ATTACCGG	14767
4588	GGUAAUAC G CUACAGCG	6019	CGCTGTAG GGCTAGCTACAACGA GTATTACC	14768
4585	AAUACGCU A CAGCGUUA	6020	TAACGCTG GGCTAGCTACAACGA AGCGTATT	14769
4582	ACGCUACA G CGUUAAGU	6021	ACTTAACG GGCTAGCTACAACGA TGTAGCGT	14770
4580	GCUACAGC G UUAAGUCC	6022	GGACTTAA GGCTAGCTACAACGA GCTGTAGC	14771
4575	AGCGUUAA G UCCGAGGC	6023	GCCTCGGA GGCTAGCTACAACGA TTAACGCT	14772
4568	AGUCCGAG G CCCGACAG	6024	CTGTCGGG GGCTAGCTACAACGA CTCGGACT	14773
4563	GAGGCCCG A CAGCUUUG	6025	CAAAGCTG GGCTAGCTACAACGA CGGGCCTC	14774
4560	GCCCGACA G CUUUGCAG	6026	CTGCAAAG GGCTAGCTACAACGA TGTCGGGC	14775
4555	ACAGCUUU G CAGCGAGC	6027	GCTCGCTG GGCTAGCTACAACGA AAAGCTGT	14776
4552	GCUUUGCA G CGAGCUCG	6028	CGAGCTCG GGCTAGCTACAACGA TGCAAAGC	14777
4548	UGCAGCGA G CUCGUCAC	6029	GTGACGAG GGCTAGCTACAACGA TCGCTGCA	14778
4544	GCGAGCUC G UCACAUUU	6030	AAATGTGA GGCTAGCTACAACGA GAGCTCGC	14779
4541	AGCUCGUC A CAUUUCUU	6031	AAGAAATG GGCTAGCTACAACGA GACGAGCT	14780
4539	CUCGUCAC A UUUCUUCU	6032	AGAAGAAA GGCTAGCTACAACGA GTGACGAG	14781
4526	UUCUUGGA A UGGCAGAA	6033	TTCTGCCA GGCTAGCTACAACGA TCCAAGAA	14782
4523	UUGGAAUG G CAGAAGAU	6034	ATCTTCTG GGCTAGCTACAACGA CATTCCAA	14783
4516	GGCAGAAG A UGAGAUGC	6035	GCATCTCA GGCTAGCTACAACGA CTTCTGCC	14784
4511	AAGAUGAG A UGCCUCCC	6036	GGGAGGCA GGCTAGCTACAACGA CTCATCTT	14785
4509	GAUGAGAU G CCUCCCC	6037	GGGGGAGG GGCTAGCTACAACGA ATCTCATC	14786
4495	CCCCUUUG A UGGUCUCG	6038	CGAGACCA GGCTAGCTACAACGA CAAAGGGG	14787
4492	CUUUGAUG G UCUCGAUG	6039	CATCGAGA GGCTAGCTACAACGA CATCAAAG	14788
4486	UGGUCUCG A UGGGGAUG	6040	CATCCCCA GGCTAGCTACAACGA CGAGACCA	14789
4480	CGAUGGGG A UGGCUUUG	6041	CAAAGCCA GGCTAGCTACAACGA CCCCATCG	14790
			THE TOTAL TOTAL COLLECTION COLLECTION	~1130

4477	HCCCANC C CHRICCO	6043	MOOGANA COCCANOCACA CAMCCCC	1480-
4477	UGGGGAUG G CUUUGCCA AUGGCUUU G CCAUAGAA	6042	TGGCAAAG GGCTAGCTACAACGA CATCCCCA	14791
4472	GCUUUGCC A UAGAAGGG		TTCTATGG GGCTAGCTACAACGA AAAGCCAT	14792
\vdash		6044	CCCTTCTA GGCTAGCTACAACGA GGCAAAGC	14793
4459	AGAAGGGG A UCUCUCCG	6045	CGGAGAGA GGCTAGCTACAACGA CCCCTTCT	14794
4450	UCUCUCCG G UGUUGGAC	6046	GTCCAACA GGCTAGCTACAACGA CGGAGAGA	14795
4448	UCUCCGGU G UUGGACAA	6047	TTGTCCAA GGCTAGCTACAACGA ACCGGAGA	14796
4443	GGUGUUGG A CAAGGCUA	6048	TAGCCTTG GGCTAGCTACAACGA CCAACACC	14797
4438	UGGACAAG G CUAUCUCC	6049	GGAGATAG GGCTAGCTACAACGA CTTGTCCA	14798
4435	ACAAGGCU A UCUCCUCG	6050	CGAGGAGA GGCTAGCTACAACGA AGCCTTGT	14799
4426	UCUCCUCG A UGUUGGGA	6051	TCCCAACA GGCTAGCTACAACGA CGAGGAGA	14800
4424	UCCUCGAU G UUGGGAUG	6052	CATCCCAA GGCTAGCTACAACGA ATCGAGGA	14801
4418	AUGUUGGG A UGUGGCAC	6053	GTGCCACA GGCTAGCTACAACGA CCCAACAT	14802
4416	GUUGGGAU G UGGCACGG	6054	CCGTGCCA GGCTAGCTACAACGA ATCCCAAC	14803
4413	GGGAUGUG G CACGGUGA	6055	TCACCGTG GGCTAGCTACAACGA CACATCCC	14804
4411	GAUGUGGC A CGGUGACC	6056	GGTCACCG GGCTAGCTACAACGA GCCACATC	14805
4408	GUGGCACG G UGACCGAU	6057	ATCGGTCA GGCTAGCTACAACGA CGTGCCAC	14806
4405	GCACGGUG A CCGAUCCC	6058	GGGATCGG GGCTAGCTACAACGA CACCGTGC	14807
4401	GGUGACCG A UCCCGGAG	6059	CTCCGGGA GGCTAGCTACAACGA CGGTCACC	14808
4392	UCCCGGAG G CGUAGCGG	6060	CCGCTACG GGCTAGCTACAACGA CTCCGGGA	14809
4390	CCGGAGGC G UAGCGGUG	6061	CACCGCTA GGCTAGCTACAACGA GCCTCCGG	14810
4387	GAGGCGUA G CGGUGGCG	6062	CGCCACCG GGCTAGCTACAACGA TACGCCTC	14811
4384	GCGUAGCG G UGGCGAGC	6063	GCTCGCCA GGCTAGCTACAACGA CGCTACGC	14812
4381	UAGCGGUG G CGAGCACG	6064	CGTGCTCG GGCTAGCTACAACGA CACCGCTA	14813
4377	GGUGGCGA G CACGACGA	6065	TCGTCGTG GGCTAGCTACAACGA TCGCCACC	14814
4375	UGGCGAGC A CGACGAGC	6066	GCTCGTCG GGCTAGCTACAACGA GCTCGCCA	14815
4372	CGAGCACG A CGAGCCGC	6067	GCGGCTCG GGCTAGCTACAACGA CGTGCTCG	14816
4368	CACGACGA G CCGCGCUC	6068	GAGCGCGG GGCTAGCTACAACGA TCGTCGTG	14817
4365	GACGAGCC G CGCUCCAG	6069	CTGGAGCG GGCTAGCTACAACGA GGCTCGTC	14818
4363	CGAGCCGC G CUCCAGCC	6070	GGCTGGAG GGCTAGCTACAACGA GCGGCTCG	14819
4357	GCGCUCCA G CCGUCUCC	6071	GGAGACGG GGCTAGCTACAACGA TGGAGCGC	14820
4354	CUCCAGCC G UCUCCGCU	6072	AGCGGAGA GGCTAGCTACAACGA GGCTGGAG	14821
4348	CCGUCUCC G CUUGGUCC	6073	GGACCAAG GGCTAGCTACAACGA GGAGACGG	14822
4343	UCCGCUUG G UCCAGGAC	6074	GTCCTGGA GGCTAGCTACAACGA CAAGCGGA	14823
4336	GGUCCAGG A CUGUGCCG	6075	CGGCACAG GGCTAGCTACAACGA CCTGGACC	14824
4333	CCAGGACU G UGCCGAUG	6076	CATCGGCA GGCTAGCTACAACGA AGTCCTGG	14825
4331	AGGACUGU G CCGAUGCC	6077	GGCATCGG GGCTAGCTACAACGA ACAGTCCT	14826
4327	CUGUGCCG A UGCCCAAA	6078	TTTGGGCA GGCTAGCTACAACGA CGGCACAG	14827
4325	GUGCCGAU G CCCAAAAU	6079	ATTTTGGG GGCTAGCTACAACGA ATCGGCAC	14828
4318	UGCCCAAA A UGGAAGUC	6080	GACTTCCA GGCTAGCTACAACGA TTTGGGCA	14829
4312	AAAUGGAA G UCGAGUCA	6081	TGACTCGA GGCTAGCTACAACGA TTCCATTT	14830
4307	GAAGUCGA G UCAAUUGA	6082	TCAATTGA GGCTAGCTACAACGA TCGACTTC	14831
4303	UCGAGUCA A UUGAGUGG	6083	CCACTCAA GGCTAGCTACAACGA TGACTCGA	14832
4298	UCAAUUGA G UGGCACUC	6084	GAGTGCCA GGCTAGCTACAACGA TGACTCGA	14833
4295	AUUGAGUG G CACUCAUC	6085	GATGAGTG GGCTAGCTACAACGA CACTCAAT	14834
4293	UGAGUGGC A CUCAUCAC	6086	GTGATGAG GGCTAGCTACAACGA CACTCAAT GTGATGAG GGCTAGCTACAACGA GCCACTCA	14835
4289	UGGCACUC A UCACACAU	6087	ATGTGTGA GGCTAGCTACAACGA GCCACTCA	
4286	CACUCAUC A CACAUUAU	6088	ATAATGTG GGCTAGCTACAACGA GAGTGCCA	14836
4284	CUCAUCAC A CAUUAUGA	6089	TCATAATG GGCTAGCTACAACGA GATGAGTG TCATAATG GGCTAGCTACAACGA GTGATGAG	14837
4282	CAUCACAC A UUAUGAUG	6090	CATCATAA GGCTAGCTACAACGA GTGATGAG CATCATAA GGCTAGCTACAACGA GTGTGATG	14838
4279	CACACAUU A UGAUGUCA	6091		14839
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4274	AUUAUGAU G UCAUAGGC	6092	CTATGACA GGCTAGCTACAACGA CATAATGT	14841
4271	AUGAUGUC A UAGGCGCC		GCCCCCTA GCCTACCTACACGA ATCATAAT	14842
4267	UGUCAUAG G CGCCCCCA	6094	GGCGCCTA GGCTAGCTACACGA GACATCAT	14843
		6095	TGGGGGCG GGCTAGCTACAACGA CTATGACA	14844
4265 4256	UCAUAGGC G CCCCCAGA	6096	TCTGGGGG GGCTAGCTACAACGA GCCTATGA	14845
4230	CCCCCAGA G CAACCACC	6097	GGTGGTTG GGCTAGCTACAACGA TCTGGGGG	14846

4253 4250	CCAGAGCA A CCACCGUC	6098	GACGGTGG GGCTAGCTACAACGA TGCTCTGG	14847
4250				4 4 5 4 5
	GAGCAACC A CCGUCGGC	6099	GCCGACGG GGCTAGCTACAACGA GGTTGCTC	14848
4247	CAACCACC G UCGGCAAG	6100	CTTGCCGA GGCTAGCTACAACGA GGTGGTTG	14849
4243	CACCGUCG G CAAGGAAC	6101	GTTCCTTG GGCTAGCTACAACGA CGACGGTG	14850
4236	GGCAAGGA A CUUGCCAU	6102	ATGGCAAG GGCTAGCTACAACGA TCCTTGCC	14851
4232	AGGAACUU G CCAUAGGU	6103	ACCTATGG GGCTAGCTACAACGA AAGTTCCT	14852
4229	AACUUGCC A UAGGUGGA	6104	TCCACCTA GGCTAGCTACAACGA GGCAAGTT	14853
4225	UGCCAUAG G UGGAGUAC	6105	GTACTCCA GGCTAGCTACAACGA CTATGGCA	14854
4220	UAGGUGGA G UACGUGAU	6106	ATCACGTA GGCTAGCTACAACGA TCCACCTA	14855
4218	GGUGGAGU A CGUGAUGG	6107	CCATCACG GGCTAGCTACAACGA ACTCCACC	14856
4216	UGGAGUAC G UGAUGGGG	6108	CCCCATCA GGCTAGCTACAACGA GTACTCCA	14857
4213	AGUACGUG A UGGGGGCG	6109	CGCCCCCA GGCTAGCTACAACGA CACGTACT	14858
4207	UGAUGGGG G CGCCCGUG	6110	CACGGGCG GGCTAGCTACAACGA CCCCATCA	14859
4205	AUGGGGC G CCCGUGGU	6111	ACCACGGG GGCTAGCTACAACGA GCCCCCAT	14860
4201	GGGCGCCC G UGGUGAUG	6112	CATCACCA GGCTAGCTACAACGA GGGCGCCC	14861
4198	CGCCCGUG G UGAUGGUC	6113	GACCATCA GGCTAGCTACAACGA CACGGGCG	14862
4195	CCGUGGUG A UGGUCCUU	6114	AAGGACCA GGCTAGCTACAACGA CACCACGG	14863
4192	UGGUGAUG G UCCUUACC	6115	GGTAAGGA GGCTAGCTACAACGA CACCACGG	14864
4186	UGGUCCUU A CCCCAGUU	6116	AACTGGGG GGCTAGCTACAACGA CATCACCA AACTGGGG GGCTAGCTACAACGA AAGGACCA	+
4180	UUACCCCA G UUCUGAUG	6117		14865
			CATCAGAA GGCTAGCTACAACGA TGGGGTAA	14866
4174	CAGUUCUG A UGUUAGGA	6118	TCCTAACA GGCTAGCTACAACGA CAGAACTG	14867
4172	GUUCUGAU G UUAGGAUC	6119	GATCCTAA GGCTAGCTACAACGA ATCAGAAC	14868
4166	AUGUUAGG A UCGACACC	6120	GGTGTCGA GGCTAGCTACAACGA CCTAACAT	14869
4162	UAGGAUCG A CACCGUGU	6121	ACACGGTG GGCTAGCTACAACGA CGATCCTA	14870
4160	GGAUCGAC A CCGUGUGC	6122	GCACACGG GGCTAGCTACAACGA GTCGATCC	14871
4157	UCGACACC G UGUGCCUU	6123	AAGGCACA GGCTAGCTACAACGA GGTGTCGA	14872
4155	GACACCGU G UGCCUUAG	6124	CTAAGGCA GGCTAGCTACAACGA ACGGTGTC	14873
4153	CACCGUGU G CCUUAGAC	6125	GTCTAAGG GGCTAGCTACAACGA ACACGGTG	14874
4146	UGCCUUAG A CAUAUACG	6126	CGTATATG GGCTAGCTACAACGA CTAAGGCA	14875
4144	CCUUAGAC A UAUACGCC	6127	GGCGTATA GGCTAGCTACAACGA GTCTAAGG	14876
4142	UUAGACAU A UACGCCCC	6128	GGGGCGTA GGCTAGCTACAACGA ATGTCTAA	14877
4140	AGACAUAU A CGCCCCAA	6129	TTGGGGCG GGCTAGCTACAACGA ATATGTCT	14878
4138	ACAUAUAC G CCCCAAAC	6130	GTTTGGGG GGCTAGCTACAACGA GTATATGT	14879
4131	CGCCCCAA A CCCUAAGG	6131	CCTTAGGG GGCTAGCTACAACGA TTGGGGCG	14880
4123	ACCCUAAG G UGGCGGUA	6132	TACCGCCA GGCTAGCTACAACGA CTTAGGGT	14881
4120	CUAAGGUG G CGGUAACG	6133	CGTTACCG GGCTAGCTACAACGA CACCTTAG	14882
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4114	UGGCGGUA A CGGACGGA	6135	TCCGTCCG GGCTAGCTACAACGA TACCGCCA	14884
4110	GGUAACGG A CGGAUUUA	6136	TAAATCCG GGCTAGCTACAACGA CCGTTACC	14885
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4099	GAUUUAGG A CGAGCACU	6138	AGTGCTCG GGCTAGCTACAACGA CCTAAATC	14887
4095	UAGGACGA G CACUUUGU	6139	ACAAAGTG GGCTAGCTACAACGA TCGTCCTA	14888
4093	GGACGAGC A CUUUGUAC	6140	GTACAAAG GGCTAGCTACAACGA GCTCGTCC	14889
4088	AGCACUUU G UACCCUUG	6141	CAAGGGTA GGCTAGCTACAACGA AAAGTGCT	14890
4086	CACUUUGU A CCCUUGGG	6142	CCCAAGGG GGCTAGCTACAACGA ACAAAGTG	14891
4078	ACCCUUGG G CUGCAUAU	6143	ATATGCAG GGCTAGCTACAACGA CCAAGGGT	
4075	CUUGGGCU G CAUAUGCA			14892
4073		6144	TGCATATG GGCTAGCTACAACGA AGCCCAAG	14893
4073	UGGGCUGC A UAUGCAGC	6145	GCTGCATA GGCTAGCTACAACGA GCAGCCCA	14894
4071	GGCUGCAU A UGCAGCCG	6146	CGGCTGCA GGCTAGCTACAACGA ATGCAGCC	14895
	CUGCAUAU G CAGCCGGU	6147	ACCGGCTG GGCTAGCTACAACGA ATATGCAG	14896
4066	CAUAUGCA G CCGGUACC	6148	GGTACCGG GGCTAGCTACAACGA TGCATATG	14897
4062	UGCAGCCG G UACCUUAG	6149	CTAAGGTA GGCTAGCTACAACGA CGGCTGCA	14898
4060	CAGCCGGU A CCUUAGUG	6150	CACTAAGG GGCTAGCTACAACGA ACCGGCTG	14899
4054	GUACCUUA G UGCUCUUG	6151	CAAGAGCA GGCTAGCTACAACGA TAAGGTAC	14900
4052	ACCUUAGU G CUCUUGCC	6152	GGCAAGAG GGCTAGCTACAACGA ACTAAGGT	14901
4046	GUGCUCUU G CCGCUGCC	6153	GGCAGCGG GGCTAGCTACAACGA AAGAGCAC	14902

4043	CUCUUGCC G CUGCCAGU	6154	ACTGGCAG GGCTAGCTACAACGA GGCAAGAG	14903
4040	UUGCCGCU G CCAGUGGG	6155	CCCACTGG GGCTAGCTACAACGA AGCGGCAA	14904
4036	CGCUGCCA G UGGGAGCG	6156	CGCTCCCA GGCTAGCTACAACGA TGGCAGCG	14905
4030	CAGUGGGA G CGUGUAGG	6157	CCTACACG GGCTAGCTACAACGA TCCCACTG	14906
4028	GUGGGAGC G UGUAGGUG	6158	CACCTACA GGCTAGCTACAACGA GCTCCCAC	14907
4026	GGGAGCGU G UAGGUGGG	6159	CCCACCTA GGCTAGCTACAACGA ACGCTCCC	14908
4022	GCGUGUAG G UGGGCCAC	6160	GTGGCCCA GGCTAGCTACAACGA CTACACGC	14909
4018	GUAGGUGG G CCACUUGG	6161	CCAAGTGG GGCTAGCTACAACGA CCACCTAC	14910
4015	GGUGGGCC A CUUGGAAU	6162	ATTCCAAG GGCTAGCTACAACGA GGCCCACC	14911
4008	CACUUGGA A UGUCUGCG	6163	CGCAGACA GGCTAGCTACAACGA TCCAAGTG	14912
4006	CUUGGAAU G UCUGCGGU	6164	ACCGCAGA GGCTAGCTACAACGA ATTCCAAG	14913
4002	GAAUGUCU G CGGUACGG	6165	CCGTACCG GGCTAGCTACAACGA AGACATTC	14914
3999	UGUCUGCG G UACGGCUG	6166	CAGCCGTA GGCTAGCTACAACGA CGCAGACA	14915
3997	UCUGCGGU A CGGCUGGG	6167	CCCAGCCG GGCTAGCTACAACGA ACCGCAGA	14916
3994	GCGGUACG G CUGGGGGG	6168	CCCCCAG GGCTAGCTACAACGA CGTACCGC	
3984	UGGGGGG A CGAGUUGU	6169		14917
		 	ACAACTCG GGCTAGCTACAACGA CCCCCCCA	14918
3980	GGGGACGA G UUGUCCGU	6170	ACGGACAA GGCTAGCTACAACGA TCGTCCCC	14919
3977	GACGAGUU G UCCGUGAA	6171	TTCACGGA GGCTAGCTACAACGA AACTCGTC	14920
3973	AGUUGUCC G UGAAGACC	6172	GGTCTTCA GGCTAGCTACAACGA GGACAACT	14921
3967	CCGUGAAG A CCGGGGAC	6173	GTCCCCGG GGCTAGCTACAACGA CTTCACGG	14922
3960	GACCGGGG A CCGCAUGG	6174	CCATGCGG GGCTAGCTACAACGA CCCCGGTC	14923
3957	CGGGGACC G CAUGGUAG	6175	CTACCATG GGCTAGCTACAACGA GGTCCCCG	14924
3955	GGGACCGC A UGGUAGUU	6176	AACTACCA GGCTAGCTACAACGA GCGGTCCC	14925
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3949	GCAUGGUA G UUUCCAUA	6178	TATGGAAA GGCTAGCTACAACGA TACCATGC	14927
3943	UAGUUUCC A UAGACUCA	6179	TGAGTCTA GGCTAGCTACAACGA GGAAACTA	14928
3939	UUCCAUAG A CUCAACGG	6180	CCGTTGAG GGCTAGCTACAACGA CTATGGAA	14929
3934	UAGACUCA A CGGGUACA	6181	TGTACCCG GGCTAGCTACAACGA TGAGTCTA	14930
3930	CUCAACGG G UACAAAGU	6182	ACTTTGTA GGCTAGCTACAACGA CCGTTGAG	14931
3928	CAACGGGU A CAAAGUCC	6183	GGACTTTG GGCTAGCTACAACGA ACCCGTTG	14932
3923	GGUACAAA G UCCACCGC	6184	GCGGTGGA GGCTAGCTACAACGA TTTGTACC	14933
3919	CAAAGUCC A CCGCCUUC	6185	GAAGGCGG GGCTAGCTACAACGA GGACTTTG	14934
3916	AGUCCACC G CCUUCGCA	6186	TGCGAAGG GGCTAGCTACAACGA GGTGGACT	14935
3910	CCGCCUUC G CAACCCCC	6187	GGGGGTTG GGCTAGCTACAACGA GAAGGCGG	14936
3907	CCUUCGCA A CCCCCCGG	6188	CCGGGGG GGCTAGCTACAACGA TGCGAAGG	14937
3898	CCCCCGG G UGCACACA	6189	TGTGTGCA GGCTAGCTACAACGA CCGGGGGG	14938
3896	CCCCGGGU G CACACAGC	6190	GCTGTGTG GGCTAGCTACAACGA ACCCGGGG	
3894	CCGGGUGC A CACAGCAG	6191	CTGCTGTG GGCTAGCTACAACGA GCACCCGG	14939
3892	GGGUGCAC A CAGCAGCC	6192		14940
3889	UGCACACA G CAGCCCGG	6193	GGCTGCTG GGCTACCTACAACGA GTGCACCC	14941
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3877			CTTCCGGG GGCTAGCTACAACGA TGCTGTGT	14943
	CCCGGAAG A UGCCCACA	6195	TGTGGGCA GGCTAGCTACAACGA CTTCCGGG	14944
3875	CGGAAGAU G CCCACAAC	6196	GTTGTGGG GGCTAGCTACAACGA ATCTTCCG	14945
3871	AGAUGCCC A CAACGUGC	6197	GCACGTTG GGCTAGCTACAACGA GGGCATCT	14946
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3864	CACAACGU G CCCCGAAG	6200	CTTCGGGG GGCTAGCTACAACGA ACGTTGTG	14949
3854	CCCGAAGG G CAGAGCAG	6201	CTGCTCTG GGCTAGCTACAACGA CCTTCGGG	14950
3849	AGGGCAGA G CAGUGGAC	6202	GTCCACTG GGCTAGCTACAACGA TCTGCCCT	14951
3846	GCAGAGCA G UGGACCGC	6203	GCGGTCCA GGCTAGCTACAACGA TGCTCTGC	14952
3842	AGCAGUGG A CCGCCCGA	6204	TCGGGCGG GGCTAGCTACAACGA CCACTGCT	14953
3839	AGUGGACC G CCCGAGGA	6205	TCCTCGGG GGCTAGCTACAACGA GGTCCACT	14954
3830	CCCGAGGA G CCCUUCAA	6206	TTGAAGGG GGCTAGCTACAACGA TCCTCGGG	14955
3821	CCCUUCAA G UAGGAGAU	6207	ATCTCCTA GGCTAGCTACAACGA TTGAAGGG	14956
3814	AGUAGGAG A UGGGCCUG	6208	CAGGCCCA GGCTAGCTACAACGA CTCCTACT	14957
3810	GGAGAUGG G CCUGGGGG	6209	CCCCCAGG GGCTAGCTACAACGA CCATCTCC	14958
			TITIES COLLINGIACIACON CONICICO	74730

2001	COMOCOCO A MACHANO	6210	COMPACES COCESCOS CASCOS COCCOSCO	14050
3801	CCUGGGGG A UAGUAAGC	6210	GCTTACTA GGCTAGCTACAACGA CCCCCAGG GGAGCTTA GGCTAGCTACAACGA TATCCCCC	14959
3798	GGGGGAUA G UAAGCUCC GAUAGUAA G CUCCCCCU	6212	ļ <u></u>	14960
3794			AGGGGGAG GGCTAGCTACAACGA TTACTATC GGTGACAG GGCTAGCTACAACGA AGGGGGAG	14961
<u> </u>	CUCCCCCU G CUGUCACC	6213		14962
3782	CCCCUGCU G UCACCCCG	6214	CGGGGTGA GGCTAGCTACAACGA AGCAGGGG	14963
3779	CUGCUGUC A CCCCGCCG	6215	CGGCGGGG GGCTAGCTACAACGA GACAGCAG	14964
3774	GUCACCCC G CCGGCGCA	6216	TGCGCCGG GGCTAGCTACAACGA GGGGTGAC	14965
3770	CCCGCCG G CGCACCGG	6217	CCGGTGCG GGCTAGCTACAACGA CGGCGGGG	14966
3768	CCGCCGGC G CACCGGAA	6218	TTCCGGTG GGCTAGCTACAACGA GCCGGCGG	14967
3766	GCCGGCGC A CCGGAAUG	6219	CATTCCGG GGCTAGCTACAACGA GCGCCGGC	14968
3760	GCACCGGA A UGACAUCA	6220	TGATGTCA GGCTAGCTACAACGA TCCGGTGC	14969
3757	CCGGAAUG A CAUCAGCG	6221	CGCTGATG GGCTAGCTACAACGA CATTCCGG	14970
3755	GGAAUGAC A UCAGCGUG	6222	CACGCTGA GGCTAGCTACAACGA GTCATTCC	14971
3751	UGACAUCA G CGUGUCUC	6223	GAGACACG GGCTAGCTACAACGA TGATGTCA	14972
3749	ACAUCAGC G UGUCUCGU	6224	ACGAGACA GGCTAGCTACAACGA GCTGATGT	14973
3747	AUCAGCGU G UCUCGUGA	6225	TCACGAGA GGCTAGCTACAACGA ACGCTGAT	14974
3742	CGUGUCUC G UGACCAAG	6226	CTTGGTCA GGCTAGCTACAACGA GAGACACG	14975
3739	GUCUCGUG A CCAAGUAA	6227	TTACTTGG GGCTAGCTACAACGA CACGAGAC	14976
3734	GUGACCAA G UAAAGGUC	6228	GACCTTTA GGCTAGCTACAACGA TTGGTCAC	14977
3728	AAGUAAAG G UCCGAGCC	6229	GGCTCGGA GGCTAGCTACAACGA CTTTACTT	14978
3722	AGGUCCGA G CCGCCGCA	6230	TGCGGCGG GGCTAGCTACAACGA TCGGACCT	14979
3719	UCCGAGCC G CCGCAGGU	6231	ACCTGCGG GGCTAGCTACAACGA GGCTCGGA	14980
3716	GAGCCGCC G CAGGUGCA	6232	TGCACCTG GGCTAGCTACAACGA GGCGGCTC	14981
3712	CGCCGCAG G UGCAUGGU	6233	ACCATGCA GGCTAGCTACAACGA CTGCGGCG	14982
3710	CCGCAGGU G CAUGGUGU	6234	ACACCATG GGCTAGCTACAACGA ACCTGCGG	14983
3708	GCAGGUGC A UGGUGUCA	6235	TGACACCA GGCTAGCTACAACGA GCACCTGC	14984
3705	GGUGCAUG G UGUCAAGG	6236	CCTTGACA GGCTAGCTACAACGA CATGCACC	14985
3703	UGCAUGGU G UCAAGGAC	6237	GTCCTTGA GGCTAGCTACAACGA ACCATGCA	14986
3696	UGUCAAGG A CCGCGCUC	6238	GAGCGCGG GGCTAGCTACAACGA CCTTGACA	14987
3693	CAAGGACC G CGCUCCGG	6239	CCGGAGCG GGCTAGCTACAACGA GGTCCTTG	14988
3691	AGGACCGC G CUCCGGGG	6240	CCCCGGAG GGCTAGCTACAACGA GCGGTCCT	14989
3681	UCCGGGG G CGCCGGCC	6241	GGCCGGCG GGCTAGCTACAACGA CCCCCGGA	14990
3679	CGGGGGC G CCGGCCAU	6242	ATGGCCGG GGCTAGCTACAACGA GCCCCCCG	14991
3675	GGGCGCCG G CCAUCCGA	6243	TCGGATGG GGCTAGCTACAACGA CGGCGCCC	14992
3672	CGCCGGCC A UCCGACGA	6244	TCGTCGGA GGCTAGCTACAACGA GGCCGGCG	14993
3667	GCCAUCCG A CGAGGUCC	6245	GGACCTCG GGCTAGCTACAACGA CGGATGGC	14994
3662	CCGACGAG G UCCUGGUC	6246	GACCAGGA GGCTAGCTACAACGA CTCGTCGG	14995
3656	AGGUCCUG G UCUACAUU	6247	AATGTAGA GGCTAGCTACAACGA CAGGACCT	14996
3652	CCUGGUCU A CAUUGGUG	6248	CACCAATG GGCTAGCTACAACGA AGACCAGG	14997
3650	UGGUCUAC A UUGGUGUA	6249	TACACCAA GGCTAGCTACAACGA GTAGACCA	14998
3646	CUACAUUG G UGUACAUU	6250	AATGTACA GGCTAGCTACAACGA CAATGTAG	14999
3644	ACAUUGGU G UACAUUUG	6251	CAAATGTA GGCTAGCTACAACGA ACCAATGT	15000
3642	AUUGGUGU A CAUUUGGG	6252	CCCAAATG GGCTAGCTACAACGA ACACCAAT	15001
3640	UGGUGUAC A UUUGGGUG	6253	CACCCAAA GGCTAGCTACAACGA GTACACCA	15001
3634	ACAUUUGG G UGAUUGGA	6254	TCCAATCA GGCTAGCTACAACGA CCAAATGT	15002
3631	UUUGGGUG A UUGGACCC	6255	GGGTCCAA GGCTAGCTACAACGA CACCCAAA	15003
3626	GUGAUUGG A CCCUUUGG	6256	CCAAAGGG GGCTAGCTACAACGA CCAATCAC	15004
3617	CCCUUUGG G CCGGCUAG	6257	CTAGCCGG GGCTAGCTACAACGA CCAATCAC	15005
3613	UUGGGCCG G CUAGGGUC	6258	GACCCTAG GGCTAGCTACAACGA CGGCCCAA	15007
3607	CGGCUAGG G UCUUUGAG	6259	CTCAAAGA GGCTAGCTACAACGA CCTAGCCG	15007
3599	GUCUUUGA G CCGGCGCC	6260	GGCGCCGG GGCTAGCTACAACGA TCAAAGAC	15009
3595	UUGAGCCG G CGCCGUGG	6261	CCACGGCG GGCTAGCTACAACGA TCAAAGAC	15010
3593	GAGCCGGC G CCGUGGUA	6262	TACCACGG GGCTAGCTACAACGA CGGCTCAA	
3590	CCGGCGCC G UGGUAGAC	6263	GTCTACCA GGCTAGCTACAACGA GCCGGCTC	15011
3587	GCGCCGUG G UAGACAGU			15012
3583	CGUGGUAG A CAGUCCAG	6264	ACTGTCTA GGCTAGCTACAACGA CACGGCGC	15013
2202	CGOGGOAG A CAGUCCAG	6265	CTGGACTG GGCTAGCTACAACGA CTACCACG	15014

1575	2500	GGUAGACA G UCCAGCAC	6266	CECCECCA CCCETA CCETA CA A CCA ECECCETA CC	15015
1573	3580		6266	GTGCTGGA GGCTAGCTACAACGA TGTCTACC	15015
1571					
1569			 		
1566	ļ				
1562 CGCCGUUG A CGCAGGUCC 6272 GACCTGCG GGCTAGCTACAACGA CAACGGCG 15021 15050 15			-		
3556					
3556			 	<u> </u>	15021
3553	-	<u></u>	+	GCGACCTG GGCTAGCTACAACGA GTCAACGG	15022
1543	3556	UGACGCAG G UCGCUAGG	6274	CCTAGCGA GGCTAGCTACAACGA CTGCGTCA	15023
3540 GANAGAU G CGUCGGG 6277 CCGCGACG GGCTAGCTACAACGA AGTCTTTC 15026	3553		6275	TTTCCTAG GGCTAGCTACAACGA GACCTGCG	15024
3538 AAGRCUGC G UCGUGGUG 6276 CACCGCGA GGCTAGCTACAACGA GCAGTCTT 15027	3543	UAGGAAAG A CUGCGUCG	6276	CGACGCAG GGCTAGCTACAACGA CTTTCCTA	15025
3535	3540	GAAAGACU G CGUCGCGG	6277	CCGCGACG GGCTAGCTACAACGA AGTCTTTC	15026
3532 GCGUCGCG G UGGAAACC 6280 GGTTTCCA GGCTAGCTACAACGA CGCGACGC 15029	3538	AAGACUGC G UCGCGGUG	6278	CACCGCGA GGCTAGCTACAACGA GCAGTCTT	15027
3526	3535	ACUGCGUC G CGGUGGAA	6279	TTCCACCG GGCTAGCTACAACGA GACGCAGT	15028
3523	3532	GCGUCGCG G UGGAAACC	6280	GGTTTCCA GGCTAGCTACAACGA CGCGACGC	15029
3517 CCACUUGA A CUUCCCCC 6283 GGGGGAG GGCTAGCTACAACGA TCAAGTGG 15032 15055 CCCCCCCC A CUUGGUUC 6284 GAACCAA GGCTAGCTACAACGA CAAGTGCA 15033 15001 UCGACUUG G UUCUUGUC 6285 GACAAGAA GGCTAGCTACAACGA CAAGTGCA 15034 15044 UGGUUCUU G UCCCGGCC 6286 GGCCGGGA GGCTAGCTACAACGA AAGAACA 15035 1484 CCCGGCCC G UGAGGGUG 6287 CTCACGGG GGCTAGCTACAACGA AGGACCA 15035 1484 CCCGGCCC G UGAGGGUG 6287 CTCACGGG GGCTAGCTACAACGA CGGGACAA 15036 15037 15036 15037 15037 15037 15038 15037 15038 15037 15038 15037 15038 15037 15038 15037 15038 15037 15038 15037 15038 15037 15038 15037 15038	3526	CGGUGGAA A CCACUUGA	6281	TCAAGTGG GGCTAGCTACAACGA TTCCACCG	15030
3505 CCCCCUCG A CUUGGUUC 6284 GAACCAAG GGCTAGCTACAACGA CGAGGGGG 15033 3500 UCGACUUG G UUCUUGUC 6285 GACAAGAA GGCTAGCTACAACGA CAAGTCGA 15034 4194 UGGUUCUU G UCCGGGCC 6286 GGCCGGGA GGCTAGCTACAACGA CAAGTCGA 15034 4188 UUGUCCG G CCCGUGAG 6287 CTCACGGG GGCTAGCTACAACGA CGGGACAA 15034 4184 CCCGGCCC G UGAGGCUG 6288 CAGCCTCA GGCTAGCTACAACGA CGGGACAA 15034 4184 CCCGGCCC G UGAGGCUG 6288 CAGCCTCA GGCTAGCTACAACGA GGGCCGGG 15037 3479 CCCGUGAG C UGGUGAU 6289 ATCACCAG GGCTAGCTACAACGA CTCACGGG 15038 4175 UGAGGCUG G UGAUAAUG 6290 CATTATCA GGCTAGCTACAACGA CACCACCC 15040 4174	3523	UGGAAACC A CUUGAACU	6282	AGTTCAAG GGCTAGCTACAACGA GGTTTCCA	15031
3500	3517	CCACUUGA A CUUCCCCC	6283	GGGGGAAG GGCTAGCTACAACGA TCAAGTGG	15032
3494 UGGUUCUU G UCCCGGCC 6286 GGCCGGGA GGCTAGCTACAACGA AAGAACCA 15035 3488 UUGUCCG G CCCGUGAG 6287 CTCACGGG GGCTAGCTACAACGA CGGGACAA 15036 3484 CCCGGCC G UGAGGCUG 6288 CAGCCTCA GGCTAGCTACAACGA GGGCCGGG 15037 3479 CCCGUGAG G CUGUGAU 6289 ATCACCAG GGCTAGCTACAACGA CACCAGC 15039 3475 UGAGGCUG G UGAUAAUG 6290 CATTATCA GGCTAGCTACAACGA CACCAGC 15040 3472 GGCUGGUG A UAAUGCAG 6291 CTGCATAT GGCTAGCTACAACGA CACCAGC 15040 3469 UGGGAUAA UGCAGCA 6292 TGGCTGCA GGCTAGCTACAACGA TATCACCA 15041 3467 GUGAUAAU G CACACAG 6292 TTTGGTG GGCTAGCTACAACGA ATTACACA 15042 3459 GCAGCCAA A CAGGCCC 6295 GGGCTG GGCTAGCTACAACGA TTGCTTCC 15043 3455 CCAAACAG G CCCGCGU 6295 GGGCTGGGTAGCTACAACGA TTGCTTCG 15045 3448 GGCCCCC G CUCUGUUG 6297 AACAGAC GGCTAGCTACAACGA GGCTGCTACAACGA 15045 3444 CCCGCCGU G UUGUGG 6298 CCAACAGA GGCTAGCTACAACGA CTACTCCC	3505	CCCCCUCG A CUUGGUUC	6284	GAACCAAG GGCTAGCTACAACGA CGAGGGGG	15033
3488 UUGUCCCG G CCCGUGAG 6287 CTCACGGG GGCTAGCTACAACGA CGGACAA 15036 3484 CCCGGCCC G UGAGGCUG 6288 CAGCCTCA GGCTAGCATCAACGA GGCCCGG 15037 3479 CCCGUGAG G CUGGUGAU 6289 ATCACCAG GGCTAGCTACAACGA CACCAGG 15038 3475 UGAGGCUG G UGAUAAUG 6290 CATTATCA GGCTAGCTACAACGA CACCACCA 15039 3467 GUGUGUG A UAAUGCAG 6291 CTGCATTA GGCTAGCTACAACGA CACCACCA 15040 3469 UGGUGADA A UGCAGCCA 6292 TGGCTGCA GGCTAGCTACAACGA TATCACCA 15041 3467 GUGAUAAU G CAGCCAAA 6293 TTTGGCTG GGCTAGCTACAACGA TATCACCA 15042 3464 AUAAUGCA G CCAAACAG 6294 CTGTTTG GGCTAGCTACAACGA TATCACCA 15042 3459 GCAGCCAA A CAGGCCCC 6295 GGGGCCTG GGCTAGCTACAACGA TTGCTTCA 15043 3450 CCAACACAG G CCCCGCGU 6297 AACAGACG GGCTAGCTACAACGA TTGCTTCA 15047 3448 GGCCCCG G UUCUGUG 6297 AACAGACG GGCTAGCTACAACGA GGGCCC 15047 3441 CCGCGUU G UUGGGAGG 6300 ACGCCCA GGCTAGCTACAACGA ACGACTACCACA<	3500	UCGACUUG G UUCUUGUC	6285	GACAAGAA GGCTAGCTACAACGA CAAGTCGA	15034
3484 CCCGGCCC G UGAGGCUG 6288 CAGCCTCA GGCTAGATACAAGA GGGCCGGG 15037 3479 CCCGUGAG G CUGGUGAU 6289 ATCACCAG GGCTAGCAACAC CTCACGG 15038 3479 UGAGGCUG G UGAUANUG 6290 CATTATCA GGCTAGCTACAACGA CAGCCTCA 15039 3472 GGCUGGUG A UAAUGCAG 6291 CTGCATTA GGCTAGCTACAACGA CACCACCC 15040 3469 UGGUGAUA A UGCAGCCAA 6292 TGGCTGCA GGCTAGCTACAACGA ATTATCACCA 15041 3467 GUGAUAAU G CACAACAG 6294 CTTTTTGG GGCTAGCTACAACGA ATTATCAC 15042 3454 ALMAUGGA G CCCAAACAG 6294 CTTTTTGG GGCTAGCTACAACGA ATTATCAC 15043 3459 GCAGCCAA A CAGGCCCC 6295 GGGGCCTG GCTAGCTACAACGA TTGGCTTGC 15044 3450 CAGGCCCC G CUCUGUU 6297 AACAGAC GGCTAGCTACAACGA GGGGCCT 15045 3444 GGCCCCCC G CUCUGUU 6297 AACAGAC GGCTAGCTACAACGA GGGGCCT 15048 3437 UGUUGGAGU 6299 ACTCCCAA GGCTAGCTACAACGA GGGGCCT 15048 3433 GGAGAUGA G CCGUANUG 6301 ACCAGCTA GGCTAGCTACAACGA TCCC	3494	UGGUUCUU G UCCCGGCC	6286	GGCCGGGA GGCTAGCTACAACGA AAGAACCA	15035
3484	3488	UUGUCCCG G CCCGUGAG	6287	CTCACGGG GGCTAGCTACAACGA CGGGACAA	15036
3479 CCCGUGAG G CUGGUGAU 6289 ATCACCAG GGCTAGCTACAACGA CTCACGGG 15038 3475 UGAGGCUG G UGAUAAUG 6290 CATTATCA GGCTAGCTACAACGA CACCAGCC 15039 3472 GGCUGGUG A UAAUGCAG 6291 CTGCATTA GGCTAGCTACAACGA CACCAGCC 15040 3469 UGGUGAUA A UGCAGCCA 6292 TGGCTGCA GGCTAGCTACAACGA TATCACCA 15041 3467 GUGAUAAU G CACCAAA 6293 TTTGGCTG GGCTAGCTACAACGA TATCACC 15042 3464 AUAAUGCA G CCAAACAG 6294 CTGTTTGG GGCTAGCTACAACGA TTGGCTGC 15043 3459 GCAGCCAA A CAGGCCCC 6295 GGGGCTG GGCTAGCTACAACGA TTGGCTGC 15043 3455 CCAAACAG G CCCCGCGU 6296 ACCCGGGG GGCTAGCTACAACGA CTGTTTGG 15045 3448 GCCCCCCG G UCUGUU 6297 AACAGAG GGCTAGCTACAACGA GGGGCCT 15046 3448 GCCCCCCCG G UCUGGUG 6299 ACTCCCAA GGCTACACACACA GGCGGCC 15047 3444 CCCGCGUCU G UUGGAGU 6299 ACTCCCAA GGCTACACACACA CAGCA CTACCCCC 15049 3433 GGGAGUAG G CAGAGAG 6301 ACGGCCAA GGCTACCTACAACGA CTACCCC <td>3484</td> <td>CCCGGCCC G UGAGGCUG</td> <td>6288</td> <td>CAGCCTCA GGCTAGCTACAACGA GGGCCGGG</td> <td></td>	3484	CCCGGCCC G UGAGGCUG	6288	CAGCCTCA GGCTAGCTACAACGA GGGCCGGG	
3475 UGAGGCUG G UGAUNAUG 6290 CATTATCA GGCTAGCTACAACGA CAGCCTCA 15039 3472 GGCUGGUG A UANUGCAG 6291 CTGCATTA GGCTAGCTACAACGA CACCAGCC 15040 3469 UGGUGAUA A UGCAGCCA 6292 TGGCTGCA GGCTAGCTACAACGA TATCACCA 15041 3467 GUGAULAU G CAGCCAAA 6293 TTTGGCTG GGCTACCAACGA ATTATCAC 15042 3464 AUANUGCA G CCAAACAG 6294 CTGTTTGG GGCTAGCTACAACGA TTGGCTGC 15043 3459 GCAGCCAA A CAGGCCCC 6295 GGGGGCTG GGCTAGCTACAACGA CTGTTTGG 15045 3450 CAGGCCCC G CGUCUGUU 6296 ACCAGGGG GGCTACCTACAACGA CTGTTTGG 15045 3448 GGCCCCGC G UCUGUUG 6297 AACAGACG GGCTAGCTACAACGA CGGGGCC 15047 3444 CCGCGUCU G UUGGGAGU 6299 ACTCCCAA GGCTAGCTACAACGA AGACGGG 15047 3433 GGGAGUAG G CCGUAAUG 6301 ACGCCTA GGCTAGCTACAACGA TCCCAACA 15049 3433 GGGAGUAG A UGGCCGU 6302 GCCCATTA GGCTAGCTACAACGA TACGCCC 15051 3421 UAAUGGC G UAAUGGG 6302 GCCCATTA GGCTACCTACAACGA CACTTACC	3479	CCCGUGAG G CUGGUGAU	6289		
3472 GGCUGGUG A UAAUGCAG 6291 CTGCATTA GGCTAGCTACAACGA CACCAGCC 15040 3469 UGGUGAUA A UGCAGCCA 6292 TGGCTGCA GGCTAGCTACAACGA TATCACCA 15041 3467 GUGAUAAU G CAGCCAAA 6293 TTTGGCTG GGCTAGCTACAACGA ATTATCAC 15042 3464 AUAAUGCA G CCAAACAG 6294 CTGTTTGG GGCTAGCTACAACGA TTGGCTGC 15043 3459 GCAGCCAA A CAGGCCCC 6295 GGGGCTG GGCTAGCTACAACGA TTGGCTGC 15044 3455 CCAAACAG G CCCCGCGU 6296 ACGGGGG GGCTAGCTACAACGA GTGTTGG 15045 3450 CAGGCCCC G GUCUGUU 6297 ACACAGG GGCTAGCTACAACGA GGGCCCT 15045 3444 CCGCGGUU G UUGGAGU 6298 CCAAACAG GGCTAGCTACAACGA GGGCGCT 15048 3437 UGUUGGAG GUAGGCGU 6300 ACGCCTA GGCTAGCTACAACGA TCCCAACA 15049 3433 GGGAGUAG G CCGUAAU 6301 CATTACGG GGCTAGCTACAACGA TCCCAACA 15052 3427 AGGCCGUA A UGGGCC 6302 CGCCACTA GGCTAGCTACAACGA TCCGCCT 15052 3421 UAAUGGC GCAGGAGU 6304 TCCTCGCG GGCTAGCTACAACGA CCCA	3475	UGAGGCUG G UGAUAAUG	6290		
3469 UGGUGAUAA A UGCAGCCA 6292 TGGCTGCA GGCTAGCTACAACGA TATCACCA 15041 3467 GUGAUAAU G CAGCCAAA 6293 TTTGGCTG GGCTAGCTACAACGA ATTATCAC 15042 3464 AUAAUGCA G CCAAACAG 6294 CTGTTTG GGCTAGCTACAACGA TGCATTAT 15042 3459 GCAGCCAA A CAGGCCCC 6295 GGGGCCTG GGCTAGCTACAACGA TTGCTTG 15044 3455 CCAACAGG G CCCCGCGU 6296 ACCGGGGG GGTAGCTACAACGA CTGTTTG 15045 3450 CAGGCCCC G CGUCUGUU 6297 AACAGACG GGCTAGCTACAACGA GGGGGCC 15046 3448 GGCCCCG G UCUGUUG 6298 CCAACAGA GGCTAGCTACAACGA GCGGGGC 15047 3444 UGUUGGAG G UUGGAGU 6299 ACTCCCAA GGCTAGCTACAACGA GCGGGG 15048 3437 UGUUGGAG G UUGGAGU 6300 ACGGCCTA GGCTAGCTACAACGA TCCCAACA 15049 3433 GGGAGUAG G CCGUABUG 6301 CATTACGG GGCTAGCTACAACGA TCACTCC 15050 3421 AGACCCUA A UGGGCG 6302 GCCCATTA GGCTAGCTACAACGA TCACTCCC 15051 3422 CGUAAUGG G CGCAGGAG 6304 TCCTCGCG GGCTAGCTACAACGA CCCTTAC	3472	GGCUGGUG A UAAUGCAG	6291		
3467 GUGAUAAU G CAGCCAAA 6293 TTTGGCTG GGCTAGCTACAACGA ATTATCAC 15042	3469				
3464 AUAAUGCA G CCAAACAG 6294 CTGTTTGG GGCTAGCTACAACGA TGCATTAT 15043 3459 GCAGCCAA A CAGGCCCC 6295 GGGGCCTG GGCTAGCTACAACGA TTGGCTGC 15044 3455 CCAAACAG G CCCCGCGU 6296 ACGCGGGG GGCTAGCTACAACGA CTGTTTGG 15045 3450 CAGGCCC G GUCUGUU 6297 AACAGAC GGCTACCAACGA GGCGGGCC 15046 3448 GGCCCCCC G UCUGUUGG 6298 CCAACAGA GGCTAGCTACAACGA GCGGGGCC 15047 3444 CCCGGUCU G UUGGGAGU 6299 ACTCCCAA GGCTAGCTACAACGA ACGACGCGG 15048 3437 UGUUGGGA G UAGGCCGU 6300 ACGCCTTA GGCTACAACGA TCCCAACA 15049 3430 AGUAGGCC G UAAUGGGC 6301 CATTACGG GGCTAGCTACAACGA CTACTCCC 15050 3427 AGGCCGUA A UGGGCC 6302 GCCCATTA GGCTACAACGA GCCTACT 15051 3423 AGUANGGC G UAAUGGC 6302 GCCCATTA GGCTACAACGA GCCTACT 15051 3421 UAAUGGC G CGAGGAA 6304 TCCTCGG GGCTAGCTACAACGA CCCTTACT 15054 3411 GAGGAGU G UCGCACC 6306 GGTGGCGA GGCTACAACAGA TCCTCCG 15055 <td>-</td> <td> </td> <td></td> <td>·</td> <td></td>	-	 		·	
3459 GCAGCCAA A CAGGCCCC 6295 GGGGCCTG GGCTAGCTACAACGA TTGGCTGC 15044 3455 CCAAACAG G CCCCGCGU 6296 ACGCGGGG GGCTAGCTACAACGA CTGTTTGG 15045 3450 CAGGCCCC G CGUCUGUU 6297 AACAGACG GGCTAGCTACAACGA GGGGCCTG 15046 3448 GGCCCCGC G UCUGUUGG 6298 CCAACAGA GGCTAGCTACAACGA GGGGGCC 15047 3444 CCGCGUCU G UUGGGAGU 6299 ACTCCCAA GGCTAGCTACAACGA AGAACGCGG 15049 3437 UGUUGGGA G UAGGCCGU 6300 ACGGCTA GGCTACCTACAACGA TCCCAACA 15049 3433 GGGAGUAG G CCGUAAUG 6301 CATTACGG GGCTAGCTACAACGA TCCCAACA 15050 3427 AGGCCGUA A UGGGCCG 6302 GCCCATTA GGCTACCTACAACGA TACGCCT 15052 3423 CGUAAUGG G CGAGGAGU 6304 TCCTCGCG GGCTAGCTACAACGA CCATTAC 15053 3421 UAAUGGGC G CGAGGAGU 6305 ACTCCTCG GGCTAGCTACAACGA CCCATTAC 15053 3411 GAGGAGUC G CCACCCCU 6307 AGGGGTG GGCTAGCTACAACGA TCCTCCGG 15055 3408 GAGUCGCC A CCCCUCAA 6309 TTGAGGG GGCTAGCTACAACGA GGCACTCT<	l				
3455 CCAAACAG G CCCCGCGU 6296 ACGCGGGG GGCTAGCTACAACGA CTGTTTGG 15045 3450 CAGGCCCC G CGUCUGUU 6297 AACAGACG GGCTAGCTACAACGA GGGGCCTG 15046 3448 GGCCCCG G UCUGUUG 6298 CCAACAGA GGCTAGCTACAACGA GGCGGGCC 15047 3444 CCGCGUCU GUGGAGU 6299 ACTCCCAA GGCTAGCTACAACGA AGACGCGG 15048 3437 UGUUGGGA G UAGGCCGU 6300 ACGCCTA GGCTAGCTACAACGA TCCCAACA 15049 3430 AGGAGUAG G CCGUAAUG 6301 CATTACGG GGCTAGCTACAACGA CTACTCCC 15050 3427 AGGCCGUA A UGGGCGC 6302 GCCCATTA GGCTAGCTACAACGA TCCGCCT 15052 3423 CGUAAUGG G CGCAAGGA 6304 TCCTCGCG GGCTAGCTACAACGA TCCGTCT 15052 3421 UAAUGGC G CAGAGAGU 6305 ACTCCTCG GGCTAGCTACAACGA CCATTAC 15053 3411 GAGGAGUG G CCACCCCU 6306 GGTGGCGA GGCTAGCTACAACGA TCCTCCCG 15055 3408 GAGUCGC A CCCCCU 6307 AGGGGTGGCTAGCTACAACGA GCCATTC 15056 3408 GAGUCGCC A CCCCUGC 6308 GGCTAGCTACAACGA GCTACAACGA TCC					
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3385 GACUGUCG G CUGGUCCU 6312 AGGACCAG GGCTAGCTACAACGA CGACAGTC 15061 3381 GUCGGCUG G UCCUAGGA 6313 TCCTAGGA GGCTAGCTACAACGA CAGCCGAC 15062 3372 UCCUAGGA G UAUCUCCC 6314 GGGAGATA GGCTAGCTACAACGA TCCTAGGA 15063 3370 CUAGGAGU A UCUCCCUC 6315 GAGGGAGA GGCTAGCTACAACGA ACTCCTAG 15064 3352 CCCUUCGG G CGGAGACA 6316 TGTCTCCG GGCTAGCTACAACGA CCGAAGGG 15065 3346 GGGCGGAG A CAGGUAGA 6317 TCTACCTG GGCTAGCTACAACGA CTCCGCCC 15066 3342 GGAGACAG G UAGACCCA 6318 TGGGTCTA GGCTAGCTACAACGA CTGTCTCC 15067 3338 ACAGGUAG A CCCAUAAU 6319 ATTATGGG GGCTAGCTACAACGA CTACCTGT 15068 3334 GUAGACCC A UAAUGAUG 6320 CATCATTA GGCTAGCTACAACGA GGGTCTAC 15069					
3381 GUCGGCUG G UCCUAGGA 6313 TCCTAGGA GGCTAGCTACAACGA CAGCCGAC 15062 3372 UCCUAGGA G UAUCUCCC 6314 GGGAGATA GGCTAGCTACAACGA TCCTAGGA 15063 3370 CUAGGAGU A UCUCCCUC 6315 GAGGGAGA GGCTAGCTACAACGA ACTCCTAG 15064 3352 CCCUUCGG G CGGAGACA 6316 TGTCTCCG GGCTAGCTACAACGA CCGAAGGG 15065 3346 GGGCGGAG A CAGGUAGA 6317 TCTACCTG GGCTAGCTACAACGA CTCCGCCC 15066 3342 GGAGACAG G UAGACCCA 6318 TGGGTCTA GGCTAGCTACAACGA CTGTCTCC 15067 3338 ACAGGUAG A CCCAUAAU 6319 ATTATGGG GGCTAGCTACAACGA CTACCTGT 15068 3334 GUAGACCC A UAAUGAUG 6320 CATCATTA GGCTAGCTACAACGA GGGTCTAC 15069					
3372 UCCUAGGA G UAUCUCCC 6314 GGGAGATA GGCTAGCTACAACGA TCCTAGGA 15063 3370 CUAGGAGU A UCUCCCUC 6315 GAGGGAGA GGCTAGCTACAACGA ACTCCTAG 15064 3352 CCCUUCGG G CGGAGACA 6316 TGTCTCCG GGCTAGCTACAACGA CCGAAGGG 15065 3346 GGGCGGAG A CAGGUAGA 6317 TCTACCTG GGCTAGCTACAACGA CTCCGCCC 15066 3342 GGAGACAG G UAGACCCA 6318 TGGGTCTA GGCTAGCTACAACGA CTGTCTCC 15067 3338 ACAGGUAG A CCCAUAAU 6319 ATTATGGG GGCTAGCTACAACGA CTACCTGT 15068 3334 GUAGACCC A UAAUGAUG 6320 CATCATTA GGCTAGCTACAACGA GGGTCTAC 15069					
3370 CUAGGAGU A UCUCCCUC 6315 GAGGGAGA GGCTAGCTACAACGA ACTCCTAG 15064 3352 CCCUUCGG G CGGAGACA 6316 TGTCTCCG GGCTAGCTACAACGA CCGAAGGG 15065 3346 GGGCGGAG A CAGGUAGA 6317 TCTACCTG GGCTAGCTACAACGA CTCCGCCC 15066 3342 GGAGACAG G UAGACCCA 6318 TGGGTCTA GGCTAGCTACAACGA CTGTCTCC 15067 3338 ACAGGUAG A CCCAUAAU 6319 ATTATGGG GGCTAGCTACAACGA CTACCTGT 15068 3334 GUAGACCC A UAAUGAUG 6320 CATCATTA GGCTAGCTACAACGA GGGTCTAC 15069					
3352 CCCUUCGG G CGGAGACA 6316 TGTCTCCG GGCTAGCTACAACGA CCGAAGGG 15065 3346 GGGCGAG A CAGGUAGA 6317 TCTACCTG GGCTAGCTACAACGA CTCCGCCC 15066 3342 GGAGACAG G UAGACCCA 6318 TGGGTCTA GGCTAGCTACAACGA CTGTCTCC 15067 3338 ACAGGUAG A CCCAUAAU 6319 ATTATGGG GGCTAGCTACAACGA CTACCTGT 15068 3334 GUAGACCC A UAAUGAUG 6320 CATCATTA GGCTAGCTACAACGA GGGTCTAC 15069					15063
3346 GGGCGGAG A CAGGUAGA 6317 TCTACCTG GGCTAGCTACAACGA CTCCGCCC 15066 3342 GGAGACAG G UAGACCCA 6318 TGGGTCTA GGCTAGCTACAACGA CTGTCTCC 15067 3338 ACAGGUAG A CCCAUAAU 6319 ATTATGGG GGCTAGCTACAACGA CTACCTGT 15068 3334 GUAGACCC A UAAUGAUG 6320 CATCATTA GGCTAGCTACAACGA GGGTCTAC 15069					15064
3342 GGAGACAG G UAGACCCA 6318 TGGGTCTA GGCTAGCTACAACGA CTGTCTCC 15067 3338 ACAGGUAG A CCCAUAAU 6319 ATTATGGG GGCTAGCTACAACGA CTACCTGT 15068 3334 GUAGACCC A UAAUGAUG 6320 CATCATTA GGCTAGCTACAACGA GGGTCTAC 15069					15065
3338 ACAGGUAG A CCCAUAAU 6319 ATTATGGG GGCTAGCTACAACGA CTACCTGT 15068 3334 GUAGACCC A UAAUGAUG 6320 CATCATTA GGCTAGCTACAACGA GGGTCTAC 15069					15066
3334 GUAGACCC A UAAUGAUG 6320 CATCATTA GGCTAGCTACAACGA GGGTCTAC 15069			6318		15067
			6319		15068
3331 GACCCAUA A UGAUGUCC 6321 GGACATCA GGCTAGCTACAACGA TATCCCTC 15070		GUAGACCC A UAAUGAUG	6320		15069
TATOGIC 13070	3331	GACCCAUA A UGAUGUCC	6321	GGACATCA GGCTAGCTACAACGA TATGGGTC	15070

				1 = 2 = 2
3328	CCAUAAUG A UGUCCCCA	6322	TGGGGACA GGCTAGCTACAACGA CATTATGG	15071
3326	AUAAUGAU G UCCCCACA	6323	TGTGGGGA GGCTAGCTACAACGA ATCATTAT	15072
3320	AUGUCCCC A CACGCCGC	6324	GCGGCGTG GGCTAGCTACAACGA GGGGACAT	15073
3318	GUCCCCAC A CGCCGCGG	6325	CCGCGGCG GGCTAGCTACAACGA GTGGGGAC	15074
3316	CCCCACAC G CCGCGGUG	6326	CACCGCGG GGCTAGCTACAACGA GTGTGGGG	15075
3313	CACACGCC G CGGUGUCU	6327	AGACACCG GGCTAGCTACAACGA GGCGTGTG	15076
3310	ACGCCGCG G UGUCUCCC	6328	GGGAGACA GGCTAGCTACAACGA CGCGGCGT	15077
3308	GCCGCGGU G UCUCCCCC	6329	GGGGGAGA GGCTAGCTACAACGA ACCGCGGC	15078
3295	CCCCCCAG G UGAUGAUC	6330	GATCATCA GGCTAGCTACAACGA CTGGGGGG	15079
3292	CCCAGGUG A UGAUCUUG	6331	CAAGATCA GGCTAGCTACAACGA CACCTGGG	15080
3289	AGGUGAUG A UCUUGAUU	6332	AATCAAGA GGCTAGCTACAACGA CATCACCT	15081
3283	UGAUCUUG A UUUCCAUG	6333	CATGGAAA GGCTAGCTACAACGA CAAGATCA	15082
3277	UGAUUUCC A UGUCGGAG	6334	CTCCGACA GGCTAGCTACAACGA GGAAATCA	15083
3275	AUUUCCAU G UCGGAGAA	6335	TTCTCCGA GGCTAGCTACAACGA ATGGAAAT	15084
3265	CGGAGAAG A CGACGGGC	6336	GCCCGTCG GGCTAGCTACAACGA CTTCTCCG	15085
3262	AGAAGACG A CGGGCUCG	6337	CGAGCCCG GGCTAGCTACAACGA CGTCTTCT	15086
3258	GACGACGG G CUCGACCG	6338	CGGTCGAG GGCTAGCTACAACGA CCGTCGTC	15087
3253	CGGGCUCG A CCGCUACC	6339	GGTAGCGG GGCTAGCTACAACGA CGAGCCCG	15088
3250	GCUCGACC G CUACCGCC	6340	GGCGGTAG GGCTAGCTACAACGA GGTCGAGC	15089
3247	CGACCGCU A CCGCCAGG	6341	CCTGGCGG GGCTAGCTACAACGA AGCGGTCG	15090
3244	CCGCUACC G CCAGGUCU	6342	AGACCTGG GGCTAGCTACAACGA GGTAGCGG	15091
3239	ACCGCCAG G UCUCGUAG	6343	CTACGAGA GGCTAGCTACAACGA CTGGCGGT	15092
3234	CAGGUCUC G UAGACCUG	6344	CAGGTCTA GGCTAGCTACAACGA GAGACCTG	15093
3230	UCUCGUAG A CCUGUGUG	6345	CACACAGG GGCTAGCTACAACGA CTACGAGA	15094
3226	GUAGACCU G UGUGGGCC	6346	GGCCCACA GGCTAGCTACAACGA AGGTCTAC	15095
3224	AGACCUGU G UGGGCCCA	6347	TGGGCCCA GGCTAGCTACAACGA ACAGGTCT	15096
3220	CUGUGUGG G CCCAGUCC	6348	GGACTGGG GGCTAGCTACAACGA CCACACAG	15097
3215	UGGGCCCA G UCCUGCAG	6349	CTGCAGGA GGCTAGCTACAACGA TGGGCCCA	15098
3210	CCAGUCCU G CAGUGGAG	6350	CTCCACTG GGCTAGCTACAACGA AGGACTGG	15099
3207	GUCCUGCA G UGGAGUGA	6351	TCACTCCA GGCTAGCTACAACGA TGCAGGAC	15100
3202	GCAGUGGA G UGAGGUGG	6352	CCACCTCA GGCTAGCTACAACGA TCCACTGC	15101
3197	GGAGUGAG G UGGUCAUA	6353	TATGACCA GGCTAGCTACAACGA CTCACTCC	15102
3194	GUGAGGUG G UCAUAGAC	6354	GTCTATGA GGCTAGCTACAACGA CACCTCAC	15103
3191	AGGUGGUC A UAGACGGA	6355	TCCGTCTA GGCTAGCTACAACGA GACCACCT	15104
3187	GGUCAUAG A CGGACGUA	6356	TACGTCCG GGCTAGCTACAACGA CTATGACC	15105
3183	AUAGACGG A CGUACCUU	6357	AAGGTACG GGCTAGCTACAACGA CCGTCTAT	15106
3181	AGACGGAC G UACCUUUC	6358	GAAAGGTA GGCTAGCTACAACGA GTCCGTCT	15107
3179	ACGGACGU A CCUUUCAA	6359	TTGAAAGG GGCTAGCTACAACGA ACGTCCGT	15108
3171	ACCUUUCA A UUCGGCCA	6360	TGGCCGAA GGCTAGCTACAACGA TGAAAGGT	15109
3166	UCAAUUCG G CCAACUUC	6361	GAAGTTGG GGCTAGCTACAACGA CGAATTGA	15110
3162	UUCGGCCA A CUUCAUGA	6362	TCATGAAG GGCTAGCTACAACGA TGGCCGAA	15111
3157	CCAACUUC A UGAAGGCC	6363	GGCCTTCA GGCTAGCTACAACGA GAAGTTGG	15112
3151	UCAUGAAG G CCAUUUGG	6364	CCAAATGG GGCTAGCTACAACGA CTTCATGA	15112
3148	UGAAGGCC A UUUGGACA	6365	TGTCCAAA GGCTAGCTACAACGA GGCCTTCA	15113
3142	CCAUUUGG A CAUAUUGC	6366	GCAATATG GGCTAGCTACAACGA CCAAATGG	15114
3140	AUUUGGAC A UAUUGCCC	6367	GGGCAATA GGCTAGCTACAACGA GTCCAAAT	15116
3138	UUGGACAU A UUGCCCCC	6368	GGGGGCAA GGCTAGCTACAACGA ATGTCCAA	15117
3135	GACAUAUU G CCCCCCAC	6369	GTGGGGG GGCTAGCTACAACGA ATGTCCAA	15117
3128	UGCCCCC A CCGACUUU	6370	AAAGTCGG GGCTAGCTACAACGA GGGGGGCA	
3124	CCCCACCG A CUUUCCGC	6370	GCGGAAAG GGCTAGCTACAACGA GGGGGGCA	15119
3117	GACUUUCC G CACCAAAA			15120
3117	CUUUCCGC A CCAAAAUG	6372	TTTTGGTG GGCTAGCTACAACGA GGAAAGTC	15121
	GCACCAAA A UGCAUUCA	6373	CATTITGG GGCTAGCTACAACGA GCGGAAAG	15122
3109		6374	TGAATGCA GGCTAGCTACAACGA TTTGGTGC	15123
3107	ACCAAAAU G CAUUCACG	6375	CGTGAATG GGCTAGCTACAACGA ATTTTGGT	15124
3105	CAAAAUGC A UUCACGGA	6376	TCCGTGAA GGCTAGCTACAACGA GCATTTTG	15125
3101	AUGCAUUC A CGGAUGAC	6377	GTCATCCG GGCTAGCTACAACGA GAATGCAT	15126

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3097	AUUCACGG A UGACCCCU	6378	AGGGGTCA GGCTAGCTACAACGA CCGTGAAT	15127
3094	CACGGAUG A CCCCUUGA	6379	TCAAGGGG GGCTAGCTACAACGA CATCCGTG	15128
3085	CCCCUUGA G CCCGCACA	6380	TGTGCGGG GGCTAGCTACAACGA TCAAGGGG	15129
3081	UUGAGCCC G CACAAAGU	6381	ACTTTGTG GGCTAGCTACAACGA GGGCTCAA	15130
3079	GAGCCCGC A CAAAGUCC	6382	GGACTTTG GGCTAGCTACAACGA GCGGGCTC	15131
3074	CGCACAAA G UCCGGCAC	6383	GTGCCGGA GGCTAGCTACAACGA TTTGTGCG	15132
3069	AAAGUCCG G CACUUUUG	6384	CAAAAGTG GGCTAGCTACAACGA CGGACTTT	15133
3067	AGUCCGGC A CUUUUGCU	6385	AGCAAAAG GGCTAGCTACAACGA GCCGGACT	15134
3061	GCACUUUU G CUAUACCA	6386	TGGTATAG GGCTAGCTACAACGA AAAAGTGC	15135
3058	CUUUUGCU A UACCAGCC	6387	GGCTGGTA GGCTAGCTACAACGA AGCAAAAG	15136
3056	UUUGCUAU A CCAGCCUG	6388	CAGGCTGG GGCTAGCTACAACGA ATAGCAAA	15137
3052	CUAUACCA G CCUGGAGC	6389	GCTCCAGG GGCTAGCTACAACGA TGGTATAG	15138
3045	AGCCUGGA G CACCAUGA	6390	TCATGGTG GGCTAGCTACAACGA TCCAGGCT	15139
3043	CCUGGAGC A CCAUGAGC	6391	GCTCATGG GGCTAGCTACAACGA GCTCCAGG	15140
3040	GGAGCACC A UGAGCGGG	6392	CCCGCTCA GGCTAGCTACAACGA GGTGCTCC	15141
3036	CACCAUGA G CGGGCCGA	6393	TCGGCCCG GGCTAGCTACAACGA TCATGGTG	15142
3032	AUGAGCGG G CCGAGUAU	6394	ATACTCGG GGCTAGCTACAACGA CCGCTCAT	15143
3027	CGGGCCGA G UAUGGCGA	6395	TCGCCATA GGCTAGCTACAACGA TCGGCCCG	15144
3025	GGCCGAGU A UGGCGAGC	6396	GCTCGCCA GGCTAGCTACAACGA ACTCGGCC	15145
3022	CGAGUAUG G CGAGCAUA	6397	TATGCTCG GGCTAGCTACAACGA CATACTCG	15146
3018	UAUGGCGA G CAUAAUUU	6398	AAATTATG GGCTAGCTACAACGA TCGCCATA	15147
3016	UGGCGAGC A UAAUUUUG	6399	CAAAATTA GGCTAGCTACAACGA GCTCGCCA	15148
3013	CGAGCAUA A UUUUGGUG	6400	CACCAAAA GGCTAGCTACAACGA TATGCTCG	15149
3007	UAAUUUUG G UGAUGUCA	6401	TGACATCA GGCTAGCTACAACGA CAAAATTA	15150
3004	UUUUGGUG A UGUCAAAG	6402	CTTTGACA GGCTAGCTACAACGA CACCAAAA	
3002	UUGGUGAU G UCAAAGAU	6403	ATCTTTGA GGCTAGCTACAACGA ATCACCAA	15151
2995	UGUCAAAG A UUAGCUCU	6404		15152
2991			AGAGCTAA GGCTAGCTACAACGA CTTTGACA	15153
2984	AAAGAUUA G CUCUGGGU	6405	ACCCAGAG GGCTAGCTACAACGA TAATCTTT	15154
2984	AGCUCUGG G UGGACCAC	6406	GTGGTCCA GGCTAGCTACAACGA CCAGAGCT	15155
\longrightarrow	CUGGGUGG A CCACACAC	6407	GTGTGTGG GGCTAGCTACAACGA CCACCCAG	15156
2977	GGUGGACC A CACACGUG	6408	CACGTGTG GGCTAGCTACAACGA GGTCCACC	15157
2975	UGGACCAC A CACGUGAG	6409	CTCACGTG GGCTAGCTACAACGA GTGGTCCA	15158
2973	GACCACAC A CGUGAGGA	6410	TCCTCACG GGCTAGCTACAACGA GTGTGGTC	15159
2971	CCACACAC G UGAGGAGA	6411	TCTCCTCA GGCTAGCTACAACGA GTGTGTGG	15160
2962	UGAGGAGA A UGAUGGCA	6412	TGCCATCA GGCTAGCTACAACGA TCTCCTCA	15161
2959	GGAGAAUG A UGGCACCG	6413	CGGTGCCA GGCTAGCTACAACGA CATTCTCC	15162
2956	GAAUGAUG G CACCGCGC	6414	GCGCGGTG GGCTAGCTACAACGA CATCATTC	15163
2954	AUGAUGGC A CCGCGCCC	6415	GGGCGCGG GGCTAGCTACAACGA GCCATCAT	15164
2951	AUGGCACC G CGCCCCCC	6416	GGGGGCG GGCTAGCTACAACGA GGTGCCAT	15165
2949	GGCACCGC G CCCCCCC	6417	GGGGGGG GGCTAGCTACAACGA GCGGTGCC	15166
2938	CCCCCGA A CGUUGAGG	6418	CCTCAACG GGCTAGCTACAACGA TCGGGGGG	15167
2936	CCCCGAAC G UUGAGGGG	6419	CCCCTCAA GGCTAGCTACAACGA GTTCGGGG	15168
2923	GGGGGGG A UCCACACU	6420	AGTGTGGA GGCTAGCTACAACGA CCCCCCCC	15169
2919	GGGGAUCC A CACUUGCA	6421	TGCAAGTG GGCTAGCTACAACGA GGATCCCC	15170
2917	GGAUCCAC A CUUGCAAC	6422	GTTGCAAG GGCTAGCTACAACGA GTGGATCC	15171
2913	CCACACUU G CAACUGCG	6423	CGCAGTTG GGCTAGCTACAACGA AAGTGTGG	15172
2910	CACUUGCA A CUGCGCCU	6424	AGGCGCAG GGCTAGCTACAACGA TGCAAGTG	15173
2907	UUGCAACU G CGCCUCGG	6425	CCGAGGCG GGCTAGCTACAACGA AGTTGCAA	15174
2905	GCAACUGC G CCUCGGCU	6426	AGCCGAGG GGCTAGCTACAACGA GCAGTTGC	15175
2899	GCGCCUCG G CUCUGGUG	6427	CACCAGAG GGCTAGCTACAACGA CGAGGCGC	15176
2893	CGGCUCUG G UGAUAAGG	6428	CCTTATCA GGCTAGCTACAACGA CAGAGCCG	15177
2890	CUCUGGUG A UAAGGUAU	6429	ATACCTTA GGCTAGCTACAACGA CACCAGAG	15178
2885	GUGAUAAG G UAUUGCAA	6430	TTGCAATA GGCTAGCTACAACGA CTTATCAC	15179
2883	GAUAAGGU A UUGCAACC	6431	GGTTGCAA GGCTAGCTACAACGA ACCTTATC	15180
2880	AAGGUAUU G CAACCACC	6432	GGTGGTTG GGCTAGCTACAACGA AATACCTT	15181
2877	GUAUUGCA A CCACCAUA	6433	TATGGTGG GGCTAGCTACAACGA TGCAATAC	15182
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2871 CAACCACC A UAUGAGCC 6435 GGCTCATA GGCTAGCTACAACGA GGTGGTTG 2869 ACCACCAU A UGAGCCUA 6436 TAGGCTCA GGCTAGCTACAACGA ATGGTGGT 2865 CCAUAUGA G CCUAGCGA 6437 TCGCTAGG GGCTAGCTACAACGA ATGGTGGT 2860 UGAGCCUA G CGAGGAAC 6438 GTTCCTCG GGCTAGCTACAACGA TCATATGG 2853 AGCGAGGA A CACUUUGU 6439 ACAAAGTG GGCTAGCTACAACGA TCCTCGCT 2851 CGAGGAC A CUUUGUAG 6440 CTACAAAG GGCTAGCTACAACGA GTTCCTCGCT 2846 AACACUUU G UAGUAUGG 6440 CTACAAAG GGCTAGCTACAACGA GTTCCTCGCT 2846 AACACUUU G UAGUAUGG 6441 CCATACAAG GGCTAGCTACAACGA GTTCCTCG 2841 UUUGUAGA G UAGUAUGG 6442 TCACCATA GGCTAGCTACAACGA ACTACAAAGT 2841 UUUGUAGU A UGGUGACA 6443 TGTCACCA GGCTAGCTACAACGA ACTACAAAG 2838 GUAUAUG G UACAAGG 6444 CCTTGTCA GGCTAGCTACAACGA ACTACAAC 2835 GUAUGUG A CAAGGUCA 6445 TGACCTTG GGCTAGCTACAACGA ACTACAAC 2830 GUGACAAG G UCAAGAGG 6444 CCTTGTCA GGCTAGCTACAACGA ACTACTAC 2823 GGUCAAGA G UCAAGAGG 6446 ACTCTTGA GGCTAGCTACAACGA CTTGTCAC 2823 GGUCAAGA G UCAAGAGC 6447 GTCTAGCA GGCTAGCTACAACGA CTTGTCAC 2823 GGUCAAGA G UCAAGACCU 6448 AGGTCTAG GGCTAGCTACAACGA TCTTGAC 2821 UCAAGAGU G CUAGACCU 6448 AGGTCTAG GGCTAGCTACAACGA ACTCTTGA 2821 UCAAGACU A CAAAAACC 6449 TTTGTAGG GGCTAGCTACAACGA ACTCTTGA 2821 CUAGACCU A CAAAAACC 6450 GGTTTTTG GGCTAGCTACAACGA ACTCTTGA 2803 CAAAAACC A CGCCUCCG 6451 AGGCTAGCTACAACGA AGGTCTAG 2803 CAAAAACC A CGCCUCCG 6452 CGGAGGCG GGCTAGCTACAACGA AGGTTTTG 2801 AAAAACC A CGCCUCCG 6452 CGGAGGCG GGCTAGCTACAACGA GGTTTTTG 2803 CAAAAACC A CGCCUCCG 6454 GCATCGTG GGCTAGCTACAACGA GGTTTTTT 2803 CAAAAACC A CGCCUCCG 6455 TGCGGAGG GGCTAGCTACAACGA GGGTTTTT 2804 ACACCUCCG C CACGAUGC 6454 GCATCGTG GGCTAGCTACAACGA GGGTGTTTT 2805 ACGCCUCC C CACGAUGC 6455 CCGCAGG GGCTAGCTACAACGA GGGGGGGCT 2793 GCCUCCGC A CGAUGCG 6456 TGGCGCA GGCTAGCTACAACGA GGGGGGGCT 2794 AUCCGCG C CCGCAUCC 6456 GGAGGGG GGCTAGCTACAACGA GGGGGGGCT 2795 GCCCCGC A UCCCCCGCA 6456 TGGCCGCA GGCTAGCTACAACGA GGCCGGGCT 2774 AUCUCCCG UCCCGGCA 6456 TGGCCGCA GGCTAGCTACAACGA GGCCGCGT 2775 CCCGGGCC A UGCCCCG 6466 GCCACGGG GGCTAGCTACAACGA GGCCCGCT 2767 GGUCCAUG C UCCCCGG 6466 TACCCCCA GGCTAGCTACAACGA GCCCCACGGC 2767	15183 15184 15185 15186 15187 15188 15189 15190 15191 15192 15193 15194 15195 15196 15197 15198 15199 15200 15201
2869 ACCACCAU A UGAGCCUA 6436 TAGGCTCA GGCTAGCTACAACGA ATGGTGGT 2865 CCAUAUGA G CCUAGCGA 6437 TCGCTAGG GGCTAGCTACAACGA TCATATGG 2860 UGAGCCUA G CGAGGAAC 6438 GTTCCTCG GGCTAGCTACAACGA TAGGCTCA 2853 AGGGAGGA A CACUUUGU 6439 ACAAAATG GGCTAGCTACAACGA TCCTCGCT 2851 CGAGGAAC A CUUUGUAG 6440 CTACAAAG GGCTAGCTACAACGA GTCCTCGCT 2851 CGAGGAAC A CUUUGUAG 6440 CTACAAAG GGCTAGCTACAACGA GTCCTCGCT 2846 AACACUUU G UAGUAUGG 6441 CCATACTA GGCTAGCTACAACGA AAAGTTTT 2843 ACUUUGUA G UAUGGUGA 6442 TCACCATA GGCTAGCTACAACGA AAAGTTTT 2841 UUUGUAGU A UGGUGAC 6443 TGTCACCA GGCTAGCTACAACGA ACTACAACG 2838 GUAGUAUG G UGACAAGG 6444 CCTTGTCA GGCTAGCTACAACGA ACTACACA 2838 GUAGUAUG G UGACAAGG 6445 TGACCTTG GGCTAGCTACAACGA CATACTAC 2830 GUGACAAG G UCAAAGGU 6445 TGACCTTG GGCTAGCTACAACGA CATACTAC 2830 GUGACAAG G UCAAAGGU 6446 ACTCTTGA GGCTAGCTACAACGA CATCATAC 2831 GUGACAAG G UCAAAGGU 6446 ACTCTTGA GGCTAGCTACAACGA CATCATAC 2823 GGUCAAGA G UGACAAGG 6447 GTCTAGCA GGCTAGCTACAACGA CATCATCA 2821 UCAAGAGU G CUAGACCU 6448 AGGTCTAG GGCTAGCTACAACGA CTTGTCAC 2821 UCAAGAGU G CUAGACCU 6448 AGGTCTAG GGCTAGCTACAACGA CTTGACC 2821 UCAAGAGU A CCUACAAA 6449 TTTGTAGG GGCTAGCTACAACGA CTTGACC 2812 CUAGACCU A CAAAAACC 6450 GGTTTTTG GGCTAGCTACAACGA CTTTGAC 2803 CAAAAACC A CGCCUCCG 6451 AGGGCTAGCTACAACGA TTTTGTAG 2803 CAAAAACC A CGCCUCCG 6452 CGGAGGCG GGCTAGCTACAACGA TTTTGTAG 2803 CAAAAACC A CGCCUCCG 6452 CGGAGGCG GGCTAGCTACAACGA GGTTTTTG 2804 CAAAAACC A CGCCUCCG 6453 TGCGGAGG GGCTAGCTACAACGA GGTGTTTTT 2795 ACGCCUCCG C CACGAUGC 6454 GCATCGTG GGCTAGCTACAACGA GGGTGTTTT 2795 ACGCCUCCG C CACGAUGC 6457 GGTGGGGGGGGTAGCTACAACGA GGGGGGGG 2790 UCCGCACG A CGAUGCG 6458 GGAGGGG GGCTAGCTACAACGA GGGGGGGG 2790 UCCGCACG A CGAUGCG 6459 CCGCGAGGGGGGGTAGCTACAACGA GGGGGGGG 2790 UCCGCACG A CGCCCUCCG 6457 GGTGGGGGGGGGTAGCTACAACGA GGGGGGGG 2790 UCCGCACG A CGCCCUCCG 6458 GGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGG	15185 15186 15187 15188 15189 15190 15191 15192 15193 15194 15195 15196 15197 15198 15199 15200 15201
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2838 GUAGUAUG G UGACAAGG 6444 CCTTGTCA GGCTAGCTACAACGA CATACTAC 2835 GUAUGGUG A CAAGGUCA 6445 TGACCTTG GGCTAGCTACAACGA CACCATAC 2830 GUGACAAG G UCAAGAGU 6446 ACTCTTGA GGCTAGCTACAACGA CTTGTCAC 2823 GGUCAAGA G UGCUAGAC 6447 GTCTAGCA GGCTAGCTACAACGA CTTGTCAC 2821 UCAAGAGU G CUAGACCU 6448 AGGTCTAG GGCTAGCTACAACGA CTCTTGAC 2811 UCAAGAGU G CUACAAA 6449 TTTGTAGG GGCTAGCTACAACGA ACTCTTCA 2812 CUAGACCU ACAAAA 6449 TTTGTAGG GGCTAGCTACAACGA CTAGCACT 2812 CUAGACCU ACAAAAACC 6450 GGTTTTTG GGCTAGCACACAA ACGCTAGA 2806 CUACAAAA A CCACGCCU 6451 AGGGGTGG GGCTAGCTACAACGA AGGTCTAG 2803 CAAAAACC A CGCCUCCG 6452 CGGAGGCG GGCTAGCTACAACGA GGTTTTTG 2801 AAAACCA C CCCUCCG 6453 TGCGGAGG GGCTAGCTACAACGA GGTTTTTG 2795 ACGCCUCC G CACGAUGC 6454 GCATCGTG GGCTAGCTACAACGA GGGGGGCT 2793 GCCUCCGC A CGAUGGG 6455 CCGCATCG GGCTAGCTACAACGA GCGGAGGC 2790 UCCGCACG A UGCGGCCA 6456 TGGCCGCA GGCTAGCTACAACGA GCGGAGGC 2788 CGCCAGAU G CGGCCAU 6457 GATGGCG GGCTAGCTACAACGA ACCGACGGG 2788 CGCACGAU G CGGCCAU 6457 GATGGCG GGCTAGCTACAACGA ATCGTGCG 2782 AUGCGGC A UCUCCCGG 6458 GGAGATGG GGCTAGCTACAACGA ATCGTGCG 2783 ACGAUGCG CCAUCUCC 6458 GGAGATGG GGCTAGCTACAACGA ATCGTGCG 2784 AUCUCCCG UCCAUGCC 6458 GGAGATGG GGCTAGCTACAACGA ACCGATCGT 2784 AUCUCCCG UCCAUGCC 6459 CCGGGAGA GGCTAGCTACAACGA GGCCGCAT 2774 AUCUCCCG UCCAUGCC 6460 GCCATGGA GGCTAGCTACAACGA CGCACCGT 2774 AUCUCCCG UCCAUGCC 6460 GCCATGGA GGCTAGCTACAACGA CGCACCGG 2767 GGUCCAU G CGUACGCC 6461 GTACGCCA GGCTAGCTACAACGA CGGAGAC 2767 GGUCCAU G CCUACGCC 6462 GCGTAGC GGCTAGCTACAACGA CATGGAC 2767 GGUCCAU G CCUACGCC 6462 GCCGTACG GGCTAGCTACAACGA CATGGAC 2763 CAUGGCGU A CGCCCUG 6461 GTACGCCA GGCTAGCTACAACGA CATGGAC 2765 UCCAUGGC GUACGCC 6462 GCGTACG GGCTAGCTACAACGA CATGGAC 2767 GGUCCAUG G CCCGUGU 6466 TACCACGG GGCTAGCTACAACGA CATGGAC 2767 GGUCCAUG G CCCGUGU 6466 TACCACGG GGCTAGCTACAACGA GCCATGG 2767 GGUCCAUG G CCCGUGU 6466 TACCACGG GGCTAGCTACAACGA CACGGCG 2767 GUACGCC G UGGUGAC 6466 TACCACGG GGCTAGCTACAACGA GGCCTAGC 2767 GUACGCC G UGGUGAC 6466 TACCACGG GGCTAGCTACAACGA CACGGCG 2757 GUACGCC G UGGUGAC 6466 TACCACGG GGCTAGCTAC	15193 15194 15195 15196 15197 15198 15199 15200 15201
2835 GUAUGGUG A CAAGGUCA 6445 TGACCTTG GGCTAGCTACAACGA CACCATAC 2830 GUGACAAG G UCAAGAGU 6446 ACTCTTGA GGCTAGCTACAACGA CTTGTCAC 2823 GGUCAAGA G UGCUAGAC 6447 GTCTAGCA GGCTAGCTACAACGA CTTGTCAC 2821 UCAAGAGU G CUAGACCU 6448 AGGTCTAG GGCTAGCTACAACGA ACTCTTGA 2816 AGUGCUAG A CCUACAAA 6449 TTTGTAGG GGCTAGCTACAACGA ACTCTTGA 2812 CUAGACCU A CAAAAAACC 6450 GGTTTTTG GGCTAGCTACAACGA AGGTCTAG 2806 CUACAAAA A CCACGCCU 6451 AGGCGTAGCTACAACGA TTTTGTAG 2803 CAAAAACC A CGCCUCCG 6452 CGGAGGCG GGCTAGCTACAACGA TTTTGTAG 2801 AAAACCAC G CCUCCGCA 6453 TGCGGAGG GGCTAGCTACAACGA GTGTTTT 2795 ACGCCUCC G CACGAUGC 6454 GCATCGTG GGCTAGCTACAACGA GTGGTTTT 2793 GCCUCCGC A CGAUGCG 6455 CCGCATCG GGCTAGCTACAACGA GTGGTTTT 2790 UCCGCACG A UGCGGCCA 6456 TGGCCGCA GGCTAGCTACAACGA GCGGAGGC 2788 CGCACGAU G CGGCCAUC 6457 GATGGCCG GGCTAGCTACAACGA ACGGAGGCGT 2788 CGCACGAU G CGGCCAUC 6457 GATGGCCG GGCTAGCTACAACGA ACGGAGGCG 2788 CGCACGAU G CGCCAUC 6458 GGAGATGG GGCTAGCTACAACGA ACGGAGGCC 2782 AUGCGGCC A UCUCCCGG 6459 CCGGGAGA GGCTAGCTACAACGA CGCACGGA 2784 AUCUCCCG G UCCAUGGC 6459 CCGGGAGA GGCTAGCTACAACGA GCGCACGT 2774 AUCUCCCG G UCCAUGGC 6460 GCCATGGA GGCTAGCTACAACGA CGGAGAGT 2770 CCCGGUCC A UGGCGUAC 6461 GTACGCCA GGCTAGCTACAACGA CGGAGAGT 2770 CCCGGUCC A UGGCGUAC 6461 GTACGCCA GGCTAGCTACAACGA CAGGAGAGT 2767 GGUCCAUG C GUCCAUGGC 6462 GGCGTAGCTAGCTACAACGA CAGGACGGAGAT 2767 GGUCCAUG C GUCCAUGGC 6462 GGCGTAGCTAGCTACAACGA CAGGACGGAGAT 2767 GGUCCAUG C GUCCAUGGC 6461 GTACGCCA GGCTAGCTACAACGA CAGGACGGA 2763 CAUGGCGU A CGCCCGUG 6462 GGCGTAG GGCTAGCTACAACGA CAGGACGGA 2765 UCCAUGGC G UACGCCC 6462 GGCGTAG GGCTAGCTACAACGA CAGGACGC 2765 UCCAUGGC G UACGCCC 6462 GGCGTAG GGCTAGCTACAACGA CAGGACGC 2765 UCCAUGGC G UACGCCC 6462 GGCGTAG GGCTAGCTACAACGA CAGGACGC 2767 GGUCCAUG G CUACGCC 6461 CAGGGGG GGCTAGCTACAACGA ACGCCATGGA 2767 GGUCCAUG G CUACGCC 6462 GGCGTAG GGCTAGCTACAACGA CAGGACGC 2767 GGUCCAUG G CUACGCC 6462 GGCGTAG GGCTAGCTACAACGA ACGCCATGGA 2767 GGUCCAUG G CUACGCC 6466 CGCGGAGA GGCCGAACTACAACGA ACGCCATGGA 2767 GGUCCAUG G UACGCCC 6466 CGCGCGA GGCTAGCTACAACGA ACGCCATGGA 2767	15194 15195 15196 15197 15198 15199 15200 15201
2830 GUGACAAG G UCAAGAGU 6446 ACTCTTGA GGCTACCTACAACGA CTTGTCAC 2823 GGUCAAGA G UGCUAGAC 6447 GTCTAGCA GGCTAGCTACAACGA TCTTGACC 2821 UCAAGAGU G CUAGACCU 6448 AGGTCTAG GGCTAGCTACAACGA ACTCTTGA 2816 AGUGCUAG A CCUACAAA 6449 TTTGTAGG GGCTAGCTACAACGA ACTCTTGA 2812 CUAGACCU A CAAAAACC 6450 GGTTTTTG GGCTAGCTACAACGA AGGTCTAG 2806 CUACAAAA A CCACGCCU 6451 AGGCGTGG GGCTAGCTACAACGA AGGTCTAG 2803 CAAAAACC A CGCCUCCG 6452 CGGAGGC GGCTAGCTACAACGA GTTTTTGT 2801 AAAACCAC G CCUCCGCA 6453 TGCGGAGG GGCTAGCTACAACGA GTGTTTT 2795 ACGCUCCG C CACGAUGC 6454 GCATCGTG GGCTAGCTACAACGA GGGGCGT 2793 GCCUCCGC A CGAUGCG 6455 CCGCATCG GGCTAGCTACAACGA GGAGGCGT 2790 UCCGCACG A UGCGGCCA 6456 TGGCCGCA GGCTAGCTACAACGA CGGGAGGC 2788 CGCACGAU G CGGCCAUC 6457 GATGGCCG GGCTAGCTACAACGA CGTGCGGA 2788 CGCACGAU G CGGCCAUC 6458 GGAGATGG GGCTAGCTACAACGA ATCGTGCG 2782 AUGCGGCC A UCUCCC 6458 GGAGATGG GGCTAGCTACAACGA CGCATCGT 2782 AUGCGGCC A UCUCCC 6458 GGAGATGG GGCTAGCTACAACGA CGCATCGT 2774 AUCUCCCG G UCCAUGCC 6459 CCGGAGG GGCTAGCTACAACGA CGCATCGT 2777 CCCGGUCC A UGCGCUAC 6461 GTACGCA GGCTAGCTACAACGA CGGAGACT 2770 CCCGGUCC A UGCGCCA 6461 GTACGCA GGCTAGCTACAACGA GGACGGGG 2767 GGUCCAUG G CGUACGCC 6462 GCCATGG GGCTAGCTACAACGA GGACCGGG 2765 UCCAUGGC G UACGCCC 6462 GCCATGG GGCTAGCTACAACGA CATGGACC 2765 UCCAUGGC G UACGCCC 6462 GCCATGG GGCTAGCTACAACGA CATGGACC 2765 UCCAUGGC G UACGCCC 6462 CGCGTACG GGCTAGCTACAACGA CATGGACC 2765 UCCAUGGC G CGUACGCC 6462 CACGGGCG GGCTAGCTACAACGA CATGGACC 2765 UCCAUGGC G CGCACGCG 6464 CACGGGCG GGCTAGCTACAACGA CATGGACC 2765 UCCAUGGC G CGCACGCG 6464 CACGGGCG GGCTAGCTACAACGA CATGGAC 2761 UGGCGUAC G CCCGUGGU 6465 ACCACGGG GGCTAGCTACAACGA CATGGAC 2761 UGGCGUAC G CCCGUGGU 6466 CACGGGCG GGCTAGCTACAACGA CATGGAC 2761 UGGCGUAC G CCCGUGGU 6466 CACGGGCG GGCTAGCTACAACGA CACGCCA 2757 GUACGCCC G UGGUGGUA 6466 TACCACCA GGCTAGCTACAACGA CACGCCA 2751 CCGUGGUG G UGGUAACG 6467 CCTTACCA GGCTAGCTACAACGA CACGGCCA 2751 CCGUGGUG G UGGUAACG 6468 TGCCACCA GGCTAGCTACAACGA CACGGCCA 2751 CCGUGGUG G UACGCCA 6468 TGCCACACGG GCCTAGCTACAACGA CACCACGG	15195 15196 15197 15198 15199 15200 15201
2823 GGUCAAGA G UGCUAGAC 6447 GTCTAGCA GGCTACCTACAACGA TCTTGACC 2821 UCAAGAGU G CUAGACCU 6448 AGGTCTAG GGCTAGCTACAACGA ACTCTTGA 2816 AGUGCUAG A CCUACAAA 6449 TTTGTAGG GGCTAGCTACAACGA ACTCTTGA 2812 CUAGACCU A CAAAAACC 6450 GGTTTTTG GGCTAGCTACAACGA AGGTCTAG 2806 CUACAAAA A CCACGCCU 6451 AGGCGTGG GGCTAGCTACAACGA AGGTCTAG 2803 CAAAAACC A CGCCUCCG 6452 CGGAGGCG GGCTAGCTACAACGA GTTTTTG 2801 AAAACCA G CCUCCGCA 6453 TGCGGAGG GGCTAGCTACAACGA GTGTTTT 2795 ACGCCUCC G CACGAUGC 6454 GCATCGTG GGCTAGCTACAACGA GTGGTTTT 2793 GCCUCCGC A CGAUGCG 6455 CCGCATCG GGCTAGCTACAACGA GGGGGCGT 2790 UCCGCACG A UGCGGCCA 6456 TGGCCGCA GGCTAGCTACAACGA CGTGCGGA 2788 CGCACGAU G CGGCCAUC 6457 GATGGCG GGCTAGCTACAACGA CGTGCGGA 2788 CGCACGAU G CGGCCAUC 6457 GATGGCG GGCTAGCTACAACGA ATCGTGCG 2782 AUGCGGCC A UCUCCCG 6458 GGAGATG GGCTAGCTACAACGA CGCATCGT 2782 AUGCGGCC A UCUCCCGG 6459 CCGGGAGA GGCTAGCTACAACGA CGCATCGT 2774 AUCUCCCG G UCCAUGGC 6460 GCCATGGA GGCTAGCTACAACGA CGGGAGAT 2770 CCCGGUCC A UGGCGUAC 6461 GTACGCCA GGCTAGCTACAACGA CGGGAGAT 2770 CCCGGUCC A UGGCGUAC 6461 GTACGCCA GGCTAGCTACAACGA CAGGACGG 2767 GGUCCAUG G CUACGCC 6462 GGCTAGC GGCTAGCTACAACGA CATGGACC 2765 UCCAUGGC G UACGCCC 6462 GGCGTACG GGCTAGCTACAACGA CATGGACC 2765 UCCAUGGC G UACGCCC 6463 CGGGCGTA GGCTAGCTACAACGA CATGGACC 2765 UCCAUGGC G UACGCCC 6463 CGGGCGTA GGCTAGCTACAACGA CATGGACC 2765 UCCAUGGC G UACGCCC 6462 CGGCTACG GGCTAGCTACAACGA CATGGACC 2765 UCCAUGGC G UACGCCC 6463 CGGGCGTA GGCTAGCTACAACGA CATGGACC 2765 UCCAUGGC G UACGCCC 6463 CGGGCGTA GGCTAGCTACAACGA CATGGACC 2765 UCCAUGGC G UACGCCC 6464 CACGGGCG GGCTAGCTACAACGA ACGCCATGA 2761 UGGCGUAC G CCCGUGGU 6466 TACCACCA GGCTAGCTACAACGA ACGCCATG 2757 GUACGCCC G UGGUGUA 6466 TACCACCA GGCTAGCTACAACGA ACGCCATG 2754 CGCCCGUG G UGGUGUA 6466 TACCACCA GGCTAGCTACAACGA CACGGGCG 2751 CCGUGGUG G UGGUAACG 6467 CGTTACCA GGCTAGCTACAACGA CACGGGCG 2751 CCGUGGUG G UGGUAACG 6468 TGCCACCA GGCTAGCTACAACGA CACGGGCG 2751 CCGUGGUG G UACGCCA 6468 TGCCCTACCAACGA CACGGGCG	15196 15197 15198 15199 15200 15201
2821UCAAGAGU G CUAGACCU6448AGGTCTAG GGCTAGCTACAACGA ACTCTTGA2816AGUGCUAG A CCUACAAA6449TTTGTAGG GGCTAGCTACAACGA CTAGCACT2812CUAGACCU A CAAAAACC6450GGTTTTTG GGCTAGCTACAACGA AGGTCTAG2806CUACAAAA A CCACGCCU6451AGGCGTGG GGCTAGCTACAACGA TTTTGTAG2803CAAAAACC A CGCCUCCG6452CGGAGGCG GGCTAGCTACAACGA GGTTTTTG2801AAAACCAC G CCUCCGCA6453TGCGGAGG GGCTAGCTACAACGA GTGGTTTT2795ACGCCUCC G CACGAUGC6454GCATCGTG GGCTAGCTACAACGA GGAGGCGT2793GCCUCCGC A CGAUGCG6455CCGCATCG GGCTAGCTACAACGA GCGGAGGC2790UCCGCACG A UGCGGCCA6456TGGCCGCA GGCTAGCTACAACGA CGTGCGGA2788CGCACGAU G CGGCCAUC6457GATGGCCG GGCTAGCTACAACGA ATCGTGCG2785ACGAUGCG G CCAUCUCC6458GGAGATGG GGCTAGCTACAACGA ATCGTGCT2782AUGCGGCC A UCUCCCGG6459CCGGGAGA GGCTAGCTACAACGA GGCCGCAT2774AUCUCCCG G UCCAUGGC6460GCCATGGA GGCTAGCTACAACGA CGGGAGAT2770CCCGGUCC A UGGCGUAC6461GTACGCCA GGCTAGCTACAACGA GGACCGGG2767GGUCCAUG G CGUACGCC6462GGCTAGC GGCTAGCTACAACGA CATGGACC2765UCCAUGGC G UACGCCC6463CGGGCGTA GGCTAGCTACAACGA CATGGACC2765UCCAUGGC G UACGCCCG6464CACGGGG GGCTAGCTACAACGA ACGCCATG2761UGGCGUAC G CCCGUGGU6465ACCACGGG GGCTAGCTACAACGA GCCATGGA2757GUACGCCC G UGGUGUA6466TACCACCA GGCTAGCTACAACGA GACCCCA2754CGCCCGUG G UGGUAACG	15197 15198 15199 15200 15201
2816 AGUGCUAG A CCUACAAA 6449 TTTGTAGG GGCTAGCTACAACGA CTAGCACT 2812 CUAGACCU A CAAAAACC 6450 GGTTTTTG GGCTAGCTACAACGA AGGTCTAG 2806 CUACAAAA A CCACGCCU 6451 AGGCGTGG GGCTAGCTACAACGA TTTTGTAG 2803 CAAAAACC A CGCCUCCG 6452 CGGAGGCG GGCTAGCTACAACGA GGTTTTTG 2801 AAAACCAC G CCUCCGCA 6453 TGCGGAGG GGCTAGCTACAACGA GTTGTTT 2795 ACGCCUCC G CACGAUGC 6454 GCATCGTG GGCTAGCTACAACGA GGGGGCGT 2793 GCCUCCGC A CGAUGCG 6455 CCGCATCG GGCTAGCTACAACGA GCGGAGGCC 2790 UCCGCACG A UGCGGCCA 6456 TGGCCGCA GGCTAGCTACAACGA CGTGCGGA 2788 CGCACGAU G CGGCCAUC 6457 GATGGCCG GGCTAGCTACAACGA ATCGTGCG 2785 ACGAUGCG G CCAUCUCC 6458 GGAGATGG GGCTAGCTACAACGA CGCATCGT 2782 AUGCGGCC A UCUCCCGG 6459 CCGGGAGA GGCTAGCTACAACGA CGCATCGT 2774 AUCUCCCG G UCCAUGGC 6460 GCCATGGA GGCTAGCTACAACGA CGGAGGAT 2770 CCCGGUCC A UGGCGUAC 6461 GTACGCCA GGCTAGCTACAACGA CGGAGGAT 2770 CCCGGUCC A UGGCGUAC 6461 GTACGCCA GGCTAGCTACAACGA CAGGAGAT 2765 UCCAUGGC G UACGCCC 6462 GGCGTACG GGCTAGCTACAACGA CAGGAGAT 2765 UCCAUGGC G UACGCCC 6462 GGCGTACG GGCTAGCTACAACGA CATGGACC 2765 UCCAUGGC G UACGCCC 6463 CGGCGTAG GGCTAGCTACAACGA CATGGACC 2765 UCCAUGGC G UACGCCCG 6464 CACGGGCG GGCTAGCTACAACGA CATGGACC 2761 UGGCGUAC C CCCGUGGU 6464 CACGGGCG GGCTAGCTACAACGA CACGAGAC 2762 CAUGGCCG G UACGCCCG 6463 CGGCGGTAGCTACAACGA CATGGACC 2763 CAUGGCCG G UACGCCCG 6464 CACGGGCG GGCTAGCTACAACGA CATGGACC 2764 CGCCCGUG A CGCCCGUG 6464 CACGGGCG GGCTAGCTACAACGA CACGCCATG 2765 CAUGGCCC G UGGUGGUA 6466 TACCACCA GGCTAGCTACAACGA CACGCCATG 2761 UGGCGUAC G CCCGUGGU 6466 TACCACCA GGCTAGCTACAACGA CACGGCCA 2757 GUACGCCC G UGGUGGUA 6466 TACCACCA GGCTAGCTACAACGA CACGGGCG 2754 CGCCCGUG G UGGUACGC 6467 CGTTACCA GGCTAGCTACAACGA CACGGGCG 2754 CGCCCGUG G UACGCCCA 6468 TGCGCTAC GGCTAGCTACAACGA CACGGGCG 2754 CGCCCGUG G UACGCCCA 6468 TGCGCTAC GGCTAGCTACAACGA CACGGGCG 2754 CGCCGUG G UACGCCA 6468 TGCGCTAC GGCTAGCTACAACGA CACGGGCG 2751 CCGUGGUG G UAACGCCA 6468 TGCGCTAC GGCTAGCTACAACGA CACCACGG	15198 15199 15200 15201
2812 CUAGACCU A CAAAAACC 6450 GGTTTTTG GGCTAGCTACAACGA AGGTCTAG 2806 CUACAAAA A CCACGCCU 6451 AGGCGTGG GGCTAGCTACAACGA TTTTGTAG 2803 CAAAAACC A CGCCUCCG 6452 CGGAGGCG GGCTAGCTACAACGA GGTTTTTG 2801 AAAACCAC G CCUCCGCA 6453 TGCGGAGG GGCTAGCTACAACGA GTTGTTTT 2795 ACGCCUCC G CACGAUGC 6454 GCATCGTG GGCTAGCTACAACGA GGGGGCT 2793 GCCUCCGC A CGAUGCGG 6455 CCGCATCG GGCTAGCTACAACGA GCGGAGGC 2790 UCCGCACG A UGCGGCCA 6456 TGGCCGCA GGCTAGCTACAACGA CGTGCGGA 2788 CGCACGAU G CGGCCAUC 6457 GATGGCCG GGCTAGCTACAACGA ATCGTGCG 2785 ACGAUGCG G CCAUCUCC 6458 GGAGATGG GGCTAGCTACAACGA CGCATCGT 2782 AUGCGGCC A UCUCCCGG 6459 CCGGGAGA GGCTAGCTACAACGA GGCCGCAT 2774 AUCUCCCG G UCCAUGGC 6460 GCCATGGA GGCTAGCTACAACGA CGGAGAT 2770 CCCGGUCC A UGGCGUAC 6461 GTACGCCA GGCTAGCTACAACGA CGGAGAT 2770 CCCGGUCC A UGGCGUAC 6461 GTACGCCA GGCTAGCTACAACGA CATGGACC 2765 UCCAUGGC GUACGCC 6462 GGCGTACG GGCTAGCTACAACGA CATGGACC 2765 UCCAUGGC GUACGCC 6463 CGGGCGTA GGCTACAACGA CATGGACC 2765 UCCAUGGC GUACGCC 6464 CACGGGCG GGCTAGCTACAACGA CATGGACC 2763 CAUGGCGU A CGCCCGUG 6464 CACGGGCG GGCTAGCTACAACGA CATGGACC 2761 UGGCGUAC G CCCGUGGU 6465 ACCACGGG GGCTAGCTACAACGA CACGCCATG 2757 GUACGCCC GUGUGGUA 6465 ACCACGGG GGCTAGCTACAACGA CACGCCA 2757 GUACGCCC GUGUGUAC 6467 CCGTTACCA GGCTAGCTACAACGA CACGGCCA 2757 GUACGCCC GUGGUAACG 6467 CGTTACCA GGCTAGCTACAACGA CACGGCCA 2757 GUACGCCC GUGUGUAACG 6467 CGTTACCA GGCTAGCTACAACGA CACGGGCG 2754 CGCCGUG GUGUAACG 6467 CGTTACCA GGCTAGCTACAACGA CACGGGCG 2751 CCGUGGUG GUGUAACG 6467 CGTTACCA GGCTAGCTACAACGA CACGGGCG 2751 CCGUGGUG GUGUAACG 6468 TGCGCTA GGCTAGCTACAACGA CACCACGG	15199 15200 15201
2806 CUACAAAA A CCACGCCU 6451 AGGCGTGG GGCTAGCTACAACGA TTTTGTAG 2803 CAAAAACC A CGCCUCCG 6452 CGGAGGCG GGCTAGCTACAACGA GGTTTTTG 2801 AAAACCAC G CCUCCGCA 6453 TGCGGAGG GGCTAGCTACAACGA GGTGTTTT 2795 ACGCCUCC G CACGAUGC 6454 GCATCGTG GGCTAGCTACAACGA GGGGGGGT 2793 GCCUCCGC A CGAUGCGG 6455 CCGCATCG GGCTAGCTACAACGA GCGGAGGC 2790 UCCGCACG A UGCGGCCA 6456 TGGCCGCA GGCTAGCTACAACGA CGTGCGGA 2788 CGCACGAU G CGGCCAUC 6457 GATGGCCG GGCTAGCTACAACGA ATCGTGCG 2785 ACGAUGCG G CCAUCUCC 6458 GGAGATGG GGCTAGCTACAACGA CGCATCGT 2782 AUGCGGCC A UCUCCCGG 6459 CCGGGAGA GGCTAGCTACAACGA GGCCGCAT 2774 AUCUCCCG G UCCAUGGC 6460 GCCATGGA GGCTAGCTACAACGA CGGGAGAT 2770 CCCGGUCC A UGGCGUAC 6461 GTACGCCA GGCTAGCTACAACGA CGGCGGG 2767 GGUCCAUG G CGUACGCC 6462 GGCGTACG GGCTAGCTACAACGA CATGGACC 2765 UCCAUGGC G UACGCCC 6463 CGGCGTAG GGCTAGCTACAACGA CATGGAC 2763 CAUGGCGU A CGCCCUG 6464 CACGGGCG GGCTAGCTACAACGA ACGCATGA 2761 UGGCGUAC G CCCGUGGU 6466 TACCACCA GGCTAGCTACAACGA GGCCATCG 2767 GUACGCC G UGGUGGUA 6466 TACCACCA GGCTAGCTACAACGA GGCCATCG 2761 UGGCGUAC G CCCGUGGU 6466 TACCACCA GGCTAGCTACAACGA GGCCATCG 2757 GUACGCCC G UGGUGGUA 6466 TACCACCA GGCTAGCTACAACGA GGCCATCG 2754 CGCCCGUG G UGGUGAACG 6467 CGTTACCA GGCTAGCTACAACGA CACGGGCG 2751 CCGUGGUG G UAACGCCA 6468 TGGCCTTA GGCTAGCAACGA CACCACGG	15200 15201
2803 CAAAAACC A CGCCUCCG 6452 CGGAGGCG GGCTAGCTACAACGA GGTTTTTG 2801 AAAACCAC G CCUCCGCA 6453 TGCGGAGG GGCTAGCTACAACGA GTGGTTTT 2795 ACGCCUCC G CACGAUGC 6454 GCATCGTG GGCTAGCTACAACGA GGAGGCGT 2793 GCCUCCGC A CGAUGCGG 6455 CCGCATCG GGCTAGCTACAACGA GCGGAGGC 2790 UCCGCACG A UGCGGCCA 6456 TGGCCGCA GGCTAGCTACAACGA GCGGAGGC 2788 CGCACGAU G CGGCCAUC 6457 GATGGCCG GGCTAGCTACAACGA ATCGTGCG 2785 ACGAUGCG G CCAUCUCC 6458 GGAGATGG GGCTAGCTACAACGA ATCGTGCG 2782 AUGCGGCC A UCUCCCGG 6459 CCGGGAGA GGCTAGCTACAACGA GGCCGCAT 2774 AUCUCCCG G UCCAUGGC 6460 GCCATGGA GGCTAGCTACAACGA CGGGAGAT 2770 CCCGGUCC A UGGCGUAC 6461 GTACGCCA GGCTAGCTACAACGA CGGGAGAT 2767 GGUCCAUG G CGUACGCC 6462 GGCGTAGC GGCTAGCTACAACGA CATCGACC 2765 UCCAUGGC G UACGCCC 6463 CGGGCGTA GGCTAGCTACAACGA CATCGACC 2765 UCCAUGGC G UACGCCCG 6463 CGGGCGTA GGCTAGCTACAACGA GCCATCGA 2761 UGGCGUAC G CCCGUGGU 6464 CACGGGCG GGCTAGCTACAACGA ACGCCATCG 2761 UGGCGUAC G CCCGUGGU 6466 TACCACCA GGCTAGCTACAACGA GTACGCCA 2757 GUACGCCC G UGGUGGUA 6466 TACCACCA GGCTAGCTACAACGA GGCCATCG 2754 CGCCCGUG G UGGUACAC 6467 CGTTACCA GGCTAGCTACAACGA CACGGCCG 2754 CGCCCGUG G UGGUACAC 6467 CGTTACCA GGCTAGCTACAACGA CACGGCCG 2755 CCGUGGUG G UACGCCCA 6467 CGTTACCA GGCTAGCTACAACGA CACGGCCG 2754 CGCCCGUG G UGGUAACG 6467 CGTTACCA GGCTAGCTACAACGA CACGGCCG 2755 CCGUGGUG G UACGCCCA 6468 TGGCGTA GGCTAGCTACAACGA CACGGCCG	15201
AAAACCAC G CCUCCGCA 6453 TGCGGAGG GGCTAGCTACAACGA GTGGTTTT 2795 ACGCCUCC G CACGAUGC 6454 GCATCGTG GGCTAGCTACAACGA GGAGGCGT 2793 GCCUCCGC A CGAUGCGG 6455 CCGCATCG GGCTAGCTACAACGA GCGGAGGC 2790 UCCGCACG A UGCGGCCA 6456 TGGCCGCA GGCTAGCTACAACGA CGTGCGGA 2788 CGCACGAU G CGGCCAUC 6457 GATGGCCG GGCTAGCTACAACGA ATCGTGCG 2785 ACGAUGCG G CCAUCUCC 6458 GGAGATGG GGCTAGCTACAACGA CGCATCGT 2782 AUGCGGCC A UCUCCCGG 6459 CCGGGAGA GGCTAGCTACAACGA GGCCGCAT 2774 AUCUCCCG G UCCAUGGC 6460 GCCATGGA GGCTAGCTACAACGA CGGGAGAT 2770 CCCGGUCC A UGGCGUAC 6461 GTACGCCA GGCTAGCTACAACGA CGGAGAT 2770 CCCGGUCC A UGGCGUAC 6461 GTACGCCA GGCTAGCTACAACGA CATGGACC 2765 UCCAUGGC G UACGCCC 6462 GGCGTAGC GGCTAGCTACAACGA CATGGACC 2765 UCCAUGGC G UACGCCC 6463 CGGCGTA GGCTAGCTACAACGA CATGGACC 2761 UGGCGUAC G CCCGUGG 6464 CACGGGCG GGCTAGCTACAACGA ACGCCATGG 2761 UGGCGUAC G CCCGUGGU 6465 ACCACGGG GGCTAGCTACAACGA GTACGCCA 2757 GUACGCCC G UGGUGGUA 6466 TACCACCA GGCTAGCTACAACGA GAGCCCATG 2754 CGCCCGUG G UGGUAACG 6467 CGTTACCA GGCTACAACGA CACGGGCG 2755 CGCCGUG G UGGUAACG 6467 CGTTACCA GGCTACAACGA CACGACGG	
2795 ACGCCUCC G CACGAUGC 6454 GCATCGTG GGCTAGCTACAACGA GGAGGCGT 2793 GCCUCCGC A CGAUGCGG 6455 CCGCATCG GGCTAGCTACAACGA GCGGAGGC 2790 UCCGCACG A UGCGGCCA 6456 TGGCCGCA GGCTAGCTACAACGA CGTGCGGA 2788 CGCACGAU G CGGCCAUC 6457 GATGGCCG GGCTAGCTACAACGA ATCGTGCG 2785 ACGAUGCG G CCAUCUCC 6458 GGAGATGG GGCTAGCTACAACGA CGCATCGT 2782 AUGCGGCC A UCUCCCGG 6459 CCGGGAGA GGCTAGCTACAACGA GGCCGCAT 2774 AUCUCCCG G UCCAUGGC 6460 GCCATGGA GGCTAGCTACAACGA CGGGAGAT 2770 CCCGGUCC A UGGCGUAC 6461 GTACGCCA GGCTAGCTACAACGA GGACCGGG 2767 GGUCCAUG G CGUACGCC 6462 GGCGTACG GGCTAGCTACAACGA CATGGACC 2765 UCCAUGGC G UACGCCC 6463 CGGCGTA GGCTAGCTACAACGA CATGGACC 2765 UCCAUGGC G UACGCCC 6464 CACGGGCG GGCTAGCTACAACGA ACGCCATGGA 2761 UGGCGUAC G CCCCGUG 6464 CACGGGCG GGCTAGCTACAACGA ACGCCATGC 2761 UGGCGUAC G CCCGUGGU 6465 ACCACGGG GGCTAGCTACAACGA GTACGCCA 2757 GUACGCCC G UGGUGGUA 6466 TACCACCA GGCTAGCTACAACGA GGGCGTAC 2754 CGCCCGUG G UGGUAACG 6467 CGTTACCA GGCTAGCTACAACGA CACGGGCG 2754 CGCCCGUG G UGGUAACG 6467 CGTTACCA GGCTAGCTACAACGA CACGGGCG 2751 CCGUGGUG G UAACGCCA 6468 TGGCGTTA GGCTACAACGA CACCACGG	13202
2793 GCCUCCGC A CGAUGCGG 6455 CCGCATCG GGCTAGCTACAACGA GCGGAGGC 2790 UCCGCACG A UGCGGCCA 6456 TGGCCGCA GGCTAGCTACAACGA CGTGCGGA 2788 CGCACGAU G CGGCCAUC 6457 GATGGCCG GGCTAGCTACAACGA ATCGTGCG 2785 ACGAUGCG G CCAUCUCC 6458 GGAGATGG GGCTAGCTACAACGA CGCATCGT 2782 AUGCGGCC A UCUCCCGG 6459 CCGGGAGA GGCTAGCTACAACGA GGCCGCAT 2774 AUCUCCCG G UCCAUGGC 6460 GCCATGGA GGCTAGCTACAACGA CGGGAGAT 2770 CCCGGUCC A UGGCGUAC 6461 GTACGCCA GGCTAGCTACAACGA CGGGAGAT 2770 CCCGGUCC A UGGCGUAC 6461 GTACGCCA GGCTAGCTACAACGA GGACCGGG 2767 GGUCCAUG G CGUACGCC 6462 GGCGTACG GGCTAGCTACAACGA CATGGACC 2765 UCCAUGGC G UACGCCC 6463 CGGGCGTA GGCTAGCTACAACGA GCCATGGA 2763 CAUGGCGU A CGCCCGU 6464 CACGGGCG GGCTAGCTACAACGA ACGCCATG 2761 UGGCGUAC G CCCGUGGU 6465 ACCACGGG GGCTAGCTACAACGA GTACGCCA 2757 GUACGCCC G UGGUGGUA 6466 TACCACCA GGCTAGCTACAACGA GGGCGTAC 2754 CGCCCGUG G UGGUAACG 6467 CGTTACCA GGCTAGCTACAACGA CACGGGCG 2751 CCGUGGUG G UAACGCCA 6468 TGGCGTTA GGCTACAACGA CACCACGG	15203
2790 UCCGCACG A UGCGGCCA 6456 TGGCCGCA GGCTAGCTACAACGA CGTGCGGA 2788 CGCACGAU G CGGCCAUC 6457 GATGGCCG GGCTAGCTACAACGA ATCGTGCG 2785 ACGAUGCG G CCAUCUCC 6458 GGAGATGG GGCTAGCTACAACGA CGCATCGT 2782 AUGCGGCC A UCUCCCGG 6459 CCGGGAGA GGCTAGCTACAACGA GGCCGCAT 2774 AUCUCCCG G UCCAUGGC 6460 GCCATGGA GGCTAGCTACAACGA CGGGAGAT 2770 CCCGGUCC A UGGCGUAC 6461 GTACGCCA GGCTAGCTACAACGA GGACCGGG 2767 GGUCCAUG G CGUACGCC 6462 GGCGTACG GGCTAGCTACAACGA CATGGACC 2765 UCCAUGGC G UACGCCC 6463 CGGGCGTA GGCTAGCTACAACGA GCCATGGA 2763 CAUGGCGU A CGCCCGU 6464 CACGGGCG GGCTAGCTACAACGA ACGCCATG 2761 UGGCGUAC G CCCGUGGU 6465 ACCACGGG GGCTAGCTACAACGA GTACGCCA 2757 GUACGCCC G UGGUGGUA 6466 TACCACCA GGCTAGCTACAACGA GGGCGTAC 2754 CGCCCGUG G UGGUAACG 6467 CGTTACCA GGCTAGCTACAACGA CACGGGCG 2751 CCGUGGUG G UAACGCCA 6468 TGGCGTTA GGCTACAACGA CACCACGG	15204
2788 CGCACGAU G CGGCCAUC 6457 GATGGCCG GGCTAGCTACAACGA ATCGTGCG 2785 ACGAUGCG G CCAUCUCC 6458 GGAGATGG GGCTAGCTACAACGA CGCATCGT 2782 AUGCGGCC A UCUCCCGG 6459 CCGGGAGA GGCTAGCTACAACGA GGCCGCAT 2774 AUCUCCCG G UCCAUGGC 6460 GCCATGGA GGCTAGCTACAACGA CGGGAGAT 2770 CCCGGUCC A UGGCGUAC 6461 GTACGCCA GGCTAGCTACAACGA GGACCGGG 2767 GGUCCAUG G CGUACGCC 6462 GGCGTACG GGCTAGCTACAACGA CATGGACC 2765 UCCAUGGC G UACGCCC 6463 CGGGCGTA GGCTAGCTACAACGA GCCATGGA 2763 CAUGGCGU A CGCCCGUG 6464 CACGGGCG GGCTAGCTACAACGA ACGCCATG 2761 UGGCGUAC G CCCGUGGU 6465 ACCACGGG GGCTAGCTACAACGA GTACGCCA 2757 GUACGCCC G UGGUGGUA 6466 TACCACCA GGCTAGCTACAACGA GGGCGTAC 2754 CGCCCGUG G UGGUAACG 6467 CGTTACCA GGCTAGCTACAACGA CACGGGCG 2751 CCGUGGUG G UAACGCCA 6468 TGGCGTTA GGCTACAACGA CACCACGG	15205
ACGAUGCG G CCAUCUCC 6458 GGAGATGG GGCTAGCTACAACGA CGCATCGT AUGCGGCC A UCUCCCGG 6459 CCGGGAGA GGCTAGCTACAACGA GGCCGCAT AUCUCCCG G UCCAUGGC 6460 GCCATGGA GGCTAGCTACAACGA CGGGAGAT CCCGGUCC A UGGCGUAC 6461 GTACGCCA GGCTAGCTACAACGA GGACCGGG CTAGT GGUCCAUG G CGUACGCC 6462 GGCGTACG GGCTAGCTACAACGA CATGGACC CTAGT UCCAUGGC G UACGCCCG 6463 CGGCGTA GGCTAGCTACAACGA GCCATGGA CAUGGCGU A CGCCCGUG 6464 CACGGGCG GGCTAGCTACAACGA ACGCCATG CAUGGCGU A CGCCCGUG 6465 ACCACGGG GGCTAGCTACAACGA GTACGCCATG CTAGT UGGCGUAC G CCCGUGGU 6465 ACCACGGG GGCTAGCTACAACGA GTACGCCA CTAGT GUACGCCC G UGGUGGUA 6466 TACCACCA GGCTAGCTACAACGA CACGGCCG CGCCCGUG G UGGUAACG 6467 CGTTACCA GGCTAGCTACAACGA CACGGGCG CCGUGGUG G UACGCCCA 6468 TGGCGTTA GGCTACAACGA CACCACGG	15206
AUGCGGCC A UCUCCCGG 6459 CCGGGAGA GGCTAGCTACAACGA GGCCGCAT 2774 AUCUCCCG G UCCAUGGC 6460 GCCATGGA GGCTAGCTACAACGA CGGGAGAT 2770 CCCGGUCC A UGGCGUAC 6461 GTACGCCA GGCTAGCTACAACGA GGACCGGG 2767 GGUCCAUG G CGUACGCC 6462 GGCGTACG GGCTAGCTACAACGA CATGGACC 2765 UCCAUGGC G UACGCCCG 6463 CGGGCGTA GGCTAGCTACAACGA GCCATGGA 2763 CAUGGCGU A CGCCCGUG 6464 CACGGGCG GGCTAGCTACAACGA ACGCCATG 2761 UGGCGUAC G CCCGUGGU 6465 ACCACGGG GGCTAGCTACAACGA GTACGCCA 2757 GUACGCCC G UGGUGGUA 6466 TACCACCA GGCTAGCTACAACGA GGGCGTAC 2754 CGCCCGUG G UGGUAACG 6467 CGTTACCA GGCTAGCTACAACGA CACGGGCG 2751 CCGUGGUG G UAACGCCA 6468 TGGCGTTA GGCTACAACGA CACCACGG	15207
2774 AUCUCCCG G UCCAUGGC 6460 GCCATGGA GGCTAGCTACAACGA CGGGAGAT 2770 CCCGGUCC A UGGCGUAC 6461 GTACGCCA GGCTAGCTACAACGA GGACCGGG 2767 GGUCCAUG G CGUACGCC 6462 GGCGTACG GGCTAGCTACAACGA CATGGACC 2765 UCCAUGGC G UACGCCCG 6463 CGGGCGTA GGCTAGCTACAACGA GCCATGGA 2763 CAUGGCGU A CGCCCGUG 6464 CACGGGCG GGCTAGCTACAACGA ACGCCATG 2761 UGGCGUAC G CCCGUGGU 6465 ACCACGGG GGCTAGCTACAACGA GTACGCCA 2757 GUACGCCC G UGGUGGUA 6466 TACCACCA GGCTAGCTACAACGA GGCGGTAC 2754 CGCCCGUG G UGGUAACG 6467 CGTTACCA GGCTAGCTACAACGA CACGGGCG 2751 CCGUGGUG G UAACGCCA 6468 TGGCGTTA GGCTACAACGA CACCACGG	15208
2770 CCCGGUCC A UGGCGUAC 6461 GTACGCCA GGCTAGCTACAACGA GGACCGGG 2767 GGUCCAUG G CGUACGCC 6462 GGCGTACG GGCTAGCTACAACGA CATGGACC 2765 UCCAUGGC G UACGCCCG 6463 CGGCGTA GGCTAGCTACAACGA GCCATGGA 2763 CAUGGCGU A CGCCCGUG 6464 CACGGGCG GGCTAGCTACAACGA ACGCCATG 2761 UGGCGUAC G CCCGUGGU 6465 ACCACGGG GGCTAGCTACAACGA GTACGCCA 2757 GUACGCCC G UGGUGGUA 6466 TACCACCA GGCTAGCTACAACGA GGGCGTAC 2754 CGCCCGUG G UGGUAACG 6467 CGTTACCA GGCTAGCTACAACGA CACGGGCG 2751 CCGUGGUG G UAACGCCA 6468 TGGCGTTA GGCTAGCTACAACGA CACCACGG	15209
2767 GGUCCAUG G CGUACGCC 6462 GGCGTACG GGCTAGCTACAACGA CATGGACC 2765 UCCAUGGC G UACGCCCG 6463 CGGCGTA GGCTAGCTACAACGA GCCATGGA 2763 CAUGGCGU A CGCCCGUG 6464 CACGGGCG GGCTAGCTACAACGA ACGCCATG 2761 UGGCGUAC G CCCGUGGU 6465 ACCACGG GGCTAGCTACAACGA GTACGCCA 2757 GUACGCCC G UGGUGGUA 6466 TACCACCA GGCTAGCTACAACGA GGGCGTAC 2754 CGCCCGUG G UGGUAACG 6467 CGTTACCA GGCTAGCTACAACGA CACGGGCG 2751 CCGUGGUG G UAACGCCA 6468 TGGCGTTA GGCTAGCTACAACGA CACCACGG	15210
2765 UCCAUGGC G UACGCCCG 6463 CGGGCGTA GGCTAGCTACAACGA GCCATGGA 2763 CAUGGCGU A CGCCCGUG 6464 CACGGGCG GGCTAGCTACAACGA ACGCCATG 2761 UGGCGUAC G CCCGUGGU 6465 ACCACGGG GGCTAGCTACAACGA GTACGCCA 2757 GUACGCCC G UGGUGGUA 6466 TACCACCA GGCTAGCTACAACGA GGGCGTAC 2754 CGCCCGUG G UGGUAACG 6467 CGTTACCA GGCTAGCTACAACGA CACGGGCG 2751 CCGUGGUG G UAACGCCA 6468 TGGCGTTA GGCTAGCTACAACGA CACCACGG	15211
2763 CAUGGCGU A CGCCCGUG 6464 CACGGGCG GGCTAGCTACAACGA ACGCCATG 2761 UGGCGUAC G CCCGUGGU 6465 ACCACGGG GGCTAGCTACAACGA GTACGCCA 2757 GUACGCCC G UGGUGGUA 6466 TACCACCA GGCTAGCTACAACGA GGGCGTAC 2754 CGCCCGUG G UGGUAACG 6467 CGTTACCA GGCTAGCTACAACGA CACGGGCG 2751 CCGUGGUG G UAACGCCA 6468 TGGCGTTA GGCTAGCTACAACGA CACCACGG	15212
2761 UGGCGUAC G CCCGUGGU 6465 ACCACGGG GGCTAGCTACAACGA GTACGCCA 2757 GUACGCCC G UGGUGGUA 6466 TACCACCA GGCTAGCTACAACGA GGGCGTAC 2754 CGCCCGUG G UGGUAACG 6467 CGTTACCA GGCTAGCTACAACGA CACGGGCG 2751 CCGUGGUG G UAACGCCA 6468 TGGCGTTA GGCTAGCTACAACGA CACCACGG	15213
2757 GUACGCCC G UGGUGGUA 6466 TACCACCA GGCTAGCTACAACGA GGGCGTAC 2754 CGCCCGUG G UGGUAACG 6467 CGTTACCA GGCTAGCTACAACGA CACGGGCG 2751 CCGUGGUG G UAACGCCA 6468 TGGCGTTA GGCTAGCTACAACGA CACCACGG	15214
2754 CGCCCGUG G UGGUAACG 6467 CGTTACCA GGCTAGCTACAACGA CACGGGCG 2751 CCGUGGUG G UAACGCCA 6468 TGGCGTTA GGCTAGCTACAACGA CACCACGG	15215
2751 CCGUGGUG G UAACGCCA 6468 TGGCGTTA GGCTAGCTACAACGA CACCACGG	15216
	15217
2748 UGGUGGUA A CGCCAGCA 6469 TGCTGGCG GGCTAGCTACAACGA TACCACCA	15218
	15219
2742 UAACGCCA G CAGGAGCA 6471 TGCTCCTG GGCTAGCTACAACGA TGGCGTTA	15220
2736 CAGCAGGA G CAGGAGUA 6472 TACTCCTG GGCTAGCTACAACGA TCCTGCTG	15221
	15222
	15223
0704	15224
	15225
OCT O	15226
	15227
2714 CAUACGCC G UAGAGAGC 6479 GCTCTCTA GGCTAGCTACAACGA GGCGTATG	15228
2707 CGUAGAGA G CAUAUGCC 6480 GGCATATG GGCTAGCTACAACGA TCTCTACG :	15000
	15229
	15229
0.000	15230
	15230 15231
2685 AGGGACCA G CUUGCCUU 6486 AAGGCAAG GGCTAGCTACAACGA TGGTCCCT :	15230 15231 15232
	15230 15231 15232 15233
	15230 15231 15232 15233 15234
2672 CCUUUGAU G UACCAGGC 6489 GCCTGGTA GGCTAGCTACAACGA ATCAAAGG	15230 15231 15232 15233 15234 15235

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2670	UUUGAUGU A CCAGGCAG	6490	CTGCCTGG GGCTAGCTACAACGA ACATCAAA	15239
2665	UGUACCAG G CAGCACAG	6491	CTGTGCTG GGCTAGCTACAACGA CTGGTACA	15240
2662	ACCAGGCA G CACAGAAG	6492	CTTCTGTG GGCTAGCTACAACGA TGCCTGGT	15241
2660	CAGGCAGC A CAGAAGAA	6493	TTCTTCTG GGCTAGCTACAACGA GCTGCCTG	15242
2652	ACAGAAGA A CACGAGGA	6494	TCCTCGTG GGCTAGCTACAACGA TCTTCTGT	15243
2650	AGAAGAAC A CGAGGAAG	6495	CTTCCTCG GGCTAGCTACAACGA GTTCTTCT	15244
2635	AGGAGAGG A UGCCAUGC	6496	GCATGGCA GGCTAGCTACAACGA CCTCTCCT	15245
2633	GAGAGGAU G CCAUGCAC	6497	GTGCATGG GGCTAGCTACAACGA ATCCTCTC	15246
2630	AGGAUGCC A UGCACUCC	6498	GGAGTGCA GGCTAGCTACAACGA GGCATCCT	15247
2628	GAUGCCAU G CACUCCGG	6499	CCGGAGTG GGCTAGCTACAACGA ATGGCATC	15248
2626	UGCCAUGC A CUCCGGCC	6500	GGCCGGAG GGCTAGCTACAACGA GCATGGCA	15249
2620	GCACUCCG G CCAAGGAU	6501	ATCCTTGG GGCTAGCTACAACGA CGGAGTGC	15250
2613	GGCCAAGG A UGCUGCAU	6502	ATGCAGCA GGCTAGCTACAACGA CCTTGGCC	15251
2611	CCAAGGAU G CUGCAUUG	6503	CAATGCAG GGCTAGCTACAACGA ATCCTTGG	15252
2608	AGGAUGCU G CAUUGAGG	6504	CCTCAATG GGCTAGCTACAACGA AGCATCCT	15253
2606	GAUGCUGC A UUGAGGAC	6505	GTCCTCAA GGCTAGCTACAACGA GCAGCATC	15254
2599	CAUUGAGG A CCACCAGG	6506	CCTGGTGG GGCTAGCTACAACGA CCTCAATG	15255
2596	UGAGGACC A CCAGGUUC	6507	GAACCTGG GGCTAGCTACAACGA GGTCCTCA	15256
2591 2581	ACCACCAG G UUCUCUAG	6508	CTAGAGAA GGCTAGCTACAACGA CTGGTGGT	15257
	UCUCUAGG G CAGCCUCG	6509	CGAGGCTG GGCTAGCTACAACGA CCTAGAGA	15258
2578 2572	CUAGGGCA G CCUCGGCC	6510	GGCCGAGG GGCTAGCTACAACGA TGCCCTAG	15259
2566	CAGCCUCG G CCUGGGCU	6511	AGCCCAGG GGCTAGCTACAACGA CGAGGCTG	15260
	CGGCCUGG G CUACCAAC	6512	GTTGGTAG GGCTAGCTACAACGA CCAGGCCG	15261
2563	GCUGGGCU A CCAACAGC GGCUACCA A CAGCAUCA	6513	GCTGTTGG GGCTAGCTACAACGA AGCCCAGG	15262
2559	UACCAACA G CAUCAUCC	6514	TGATGCTG GGCTAGCTACAACGA TGGTAGCC	15263
2556 2554	CCAACAGC A UCAUCCAC	6515	GGATGATG GGCTAGCTACAACGA TGTTGGTA	15264
2554	ACAGCAUC A UCCACAAA	6516	GTGGATGA GGCTAGCTACAACGA GCTGTTGG	15265
2547	CAUCAUCC A CAAACAGG	6517	TTTGTGGA GGCTAGCTACAACGA GATGCTGT	15266
2543	AUCCACAA A CAGGCACA	6518	CCTGTTTG GGCTAGCTACAACGA GGATGATG	15267
2539	ACAAACAG G CACAGACG	6519 6520	TGTGCCTG GGCTAGCTACAACGA TTGTGGAT	15268
2537	AAACAGGC A CAGACGCG	6521	CGCCTGTG GGCTAGCTACAACGA CTGTTTGT	15269
2533	AGGCACAG A CGCGCGCG	6522	CGCGCCC CGCTACCTACAACGA GCCTGTTT	15270
2531	GCACAGAC G CGCGCGUC	6523	CGCGCGCG GGCTAGCTACAACGA CTGTGCCT GACGCGCG GGCTAGCTACAACGA GTCTGTGC	15271
2529	ACAGACGC G CGCGUCUG	6524	CAGACGCG GGCTAGCTACAACGA GTCTGTGC	15272
2527	AGACGCGC G CGUCUGCC	6525	GGCAGACG GGCTAGCTACAACGA GCGCGTCT	15273
2525	ACGCGCGC G UCUGCCAG	6526	CTGGCAGA GGCTAGCTACAACGA GCGCGCT	15274
2521	GCGCGUCU G CCAGGAGA	6527	TCTCCTGG GGCTAGCTACAACGA AGACGCGC	15275
2505	AAGGAAAA G CAACAGGA	6528	TCCTGTTG GGCTAGCTACAACGA TTTTCCTT	15276 15277
2502	GAAAAGCA A CAGGACAU	6529	ATGTCCTG GGCTAGCTACAACGA TGCTTTTC	
2497	GCAACAGG A CAUACUCC	6530	GGAGTATG GGCTAGCTACAACGA CCTGTTGC	15278 15279
2495	AACAGGAC A UACUCCCA	6531	TGGGAGTA GGCTAGCTACAACGA GTCCTGTT	15280
2493	CAGGACAU A CUCCCAUU	6532	AATGGGAG GGCTAGCTACAACGA ATGTCCTG	15281
2487	AUACUCCC A UUUGAUUG	6533	CAATCAAA GGCTAGCTACAACGA GGGAGTAT	15282
2482	CCCAUUUG A UUGCGAAG	6534	CTTCGCAA GGCTAGCTACAACGA CAAATGGG	15283
2479	AUUUGAUU G CGAAGGAG	6535	CTCCTTCG GGCTAGCTACAACGA AATCAAAT	15284
2470	CGAAGGAG A CAACCGCU	6536	AGCGGTTG GGCTAGCTACAACGA CTCCTTCG	15285
2467	AGGAGACA A CCGCUGAC	6537	GTCAGCGG GGCTAGCTACAACGA TGTCTCCT	15286
2464	AGACAACC G CUGACCCU	6538	AGGGTCAG GGCTAGCTACAACGA GGTTGTCT	15287
2460	AACCGCUG A CCCUACAC	6539	GTGTAGGG GGCTAGCTACAACGA CAGCGGTT	15288
2455	CUGACCCU A CACCGUAC	6540	GTACGGTG GGCTAGCTACAACGA AGGGTCAG	15289
2453	GACCCUAC A CCGUACAG	6541	CTGTACGG GGCTAGCTACAACGA GTAGGGTC	15290
2450	CCUACACC G UACAGGUA	6542	TACCTGTA GGCTAGCTACAACGA GGTGTAGG	15291
2448	UACACCGU A CAGGUAUU	6543	AATACCTG GGCTAGCTACAACGA ACGGTGTA	15292
2444	CCGUACAG G UAUUGCAC	6544	GTGCAATA GGCTAGCTACAACGA CTGTACGG	15293
2442	GUACAGGU A UUGCACGU ·	6545	ACGTGCAA GGCTAGCTACAACGA ACCTGTAC	15294
			THE THE PARTY OF T	10007

2439	CAGGUAUU G CACGUCCA	6546	TGGACGTG GGCTAGCTACAACGA AATACCTG	15295
2437	GGUAUUGC A CGUCCACG	6547	CGTGGACG GGCTAGCTACAACGA GCAATACC	15296
2435	UAUUGCAC G UCCACGAU	6548	ATCGTGGA GGCTAGCTACAACGA GTGCAATA	15297
2431	GCACGUCC A CGAUGUUC	6549	GAACATCG GGCTAGCTACAACGA GGACGTGC	15298
2428	CGUCCACG A UGUUCUGG	6550	CCAGAACA GGCTAGCTACAACGA CGTGGACG	15299
2426	UCCACGAU G UUCUGGUG	6551	CACCAGAA GGCTAGCTACAACGA ATCGTGGA	15300
2420	AUGUUCUG G UGGAGAUG	6552	CATCTCCA GGCTAGCTACAACGA CAGAACAT	15301
2414	UGGUGGAG A UGGAUCAA	6553	TTGATCCA GGCTAGCTACAACGA CTCCACCA	15302
2410	GGAGAUGG A UCAAACCA	6554	TGGTTTGA GGCTAGCTACAACGA CCATCTCC	15303
2405	UGGAUCAA A CCAGUGGA	6555	TCCACTGG GGCTAGCTACAACGA TTGATCCA	15304
2401	UCAAACCA G UGGACAGA	6556	TCTGTCCA GGCTAGCTACAACGA TGGTTTGA	15305
2397	ACCAGUGG A CAGAGCCG	6557	CGGCTCTG GGCTAGCTACAACGA CCACTGGT	15306
2392	UGGACAGA G CCGGUAGG	6558	CCTACCGG GGCTAGCTACAACGA TCTGTCCA	15307
2388	CAGAGCCG G UAGGGUGG	6559	CCACCCTA GGCTAGCTACAACGA CGGCTCTG	15308
2383	CCGGUAGG G UGGUGAAG	6560	CTTCACCA GGCTAGCTACAACGA CCTACCGG	15309
2380	GUAGGGUG G UGAAGGAG	6561	CTCCTTCA GGCTAGCTACAACGA CACCCTAC	15310
2372	GUGAAGGA G CAGGGCAG	6562	CTGCCCTG GGCTAGCTACAACGA TCCTTCAC	15311
2367	GGAGCAGG G CAGUAUUU	6563	AAATACTG GGCTAGCTACAACGA CCTGCTCC	15312
2364	GCAGGGCA G UAUUUGCC	6564	GGCAAATA GGCTAGCTACAACGA TGCCCTGC	15313
2362	AGGGCAGU A UUUGCCAC	6565	GTGGCAAA GGCTAGCTACAACGA ACTGCCCT	15314
2358	CAGUAUUU G CCACUCUG	6566	CAGAGTGG GGCTAGCTACAACGA AAATACTG	15315
2355	UAUUUGCC A CUCUGUAG	6567	CTACAGAG GGCTAGCTACAACGA GGCAAATA	15316
2350	GCCACUCU G UAGUGGAC	6568	GTCCACTA GGCTAGCTACAACGA AGAGTGGC	15317
2347	ACUCUGUA G UGGACAAC	6569	GTTGTCCA GGCTAGCTACAACGA TACAGAGT	15318
2343	UGUAGUGG A CAACAGCA	6570	TGCTGTTG GGCTAGCTACAACGA CCACTACA	15319
2340	AGUGGACA A CAGCAGCG	6571	CGCTGCTG GGCTAGCTACAACGA TGTCCACT	15320
2337	GGACAACA G CAGCGGGC	6572	GCCCGCTG GGCTAGCTACAACGA TGTTGTCC	15321
2334	CAACAGCA G CGGGCUGA	6573	TCAGCCCG GGCTAGCTACAACGA TGCTGTTG	15322
2330	AGCAGCGG G CUGAGCUC	6574	GAGCTCAG GGCTAGCTACAACGA CCGCTGCT	15323
2325	CGGGCUGA G CUCUGAUC	6575	GATCAGAG GGCTAGCTACAACGA TCAGCCCG	15324
2319	GAGCUCUG A UCUGUCCC	6576	GGGACAGA GGCTAGCTACAACGA CAGAGCTC	15325
2315	UCUGAUCU G UCCCUGUC	6577	GACAGGGA GGCTAGCTACAACGA AGATCAGA	15326
2309	CUGUCCCU G UCCUCCAA	6578	TTGGAGGA GGCTAGCTACAACGA AGGGACAG	15327
2300	UCCUCCAA A UCACAACG	6579	CGTTGTGA GGCTAGCTACAACGA TTGGAGGA	15328
2297	UCCAAAUC A CAACGCUC	6580	GAGCGTTG GGCTAGCTACAACGA GATTTGGA	15329
2294	AAAUCACA A CGCUCUCC	6581	GGAGAGCG GGCTAGCTACAACGA TGTGATTT	15330
2292	AUCACAAC G CUCUCCUC	6582	GAGGAGAG GGCTAGCTACAACGA GTTGTGAT	15331
2281	CUCCUCGA G UCCAAUUG	6583	CAATTGGA GGCTAGCTACAACGA TCGAGGAG	15332
2276	CGAGUCCA A UUGCAUGC	6584	GCATGCAA GGCTAGCTACAACGA TGGACTCG	15333
2273	GUCCAAUU G CAUGCGGC	6585	GCCGCATG GGCTAGCTACAACGA AATTGGAC	15334
2271	CCAAUUGC A UGCGGCGG	6586	CCGCCGCA GGCTAGCTACAACGA GCAATTGG	15335
2269	AAUUGCAU G CGGCGGUG	6587	CACCGCCG GGCTAGCTACAACGA ATGCAATT	15336
2266	UGCAUGCG G CGGUGAGC	6588	GCTCACCG GGCTAGCTACAACGA CGCATGCA	15337
2263	AUGCGGCG G UGAGCCUG	6589	CAGGCTCA GGCTAGCTACAACGA CGCCGCAT	15338
2259	GGCGGUGA G CCUGUGCU	6590	AGCACAGG GGCTAGCTACAACGA TCACCGCC	15339
2255	GUGAGCCU G UGCUCCAC	6591	GTGGAGCA GGCTAGCTACAACGA AGGCTCAC	15340
2253	GAGCCUGU G CUCCACGC	6592	GCGTGGAG GGCTAGCTACAACGA ACAGGCTC	15341
2248	UGUGCUCC A CGCCCCCC	6593	GGGGGCG GGCTAGCTACAACGA GGAGCACA	15342
2246	UGCUCCAC G CCCCCCAC	6594	GTGGGGG GGCTAGCTACAACGA GTGGAGCA	15343
2239	CGCCCCC A CAUACAUC	6595	GATGTATG GGCTAGCTACAACGA GGGGGGCG	15344
2237	CCCCCAC A UACAUCCU	6596	AGGATGTA GGCTAGCTACAACGA GTGGGGGG	15345
2235	CCCCACAU A CAUCCUAA	6597	TTAGGATG GGCTAGCTACAACGA ATGTGGGG	15346
2233	CCACAUAC A UCCUAACC	6598	GGTTAGGA GGCTAGCTACAACGA GTATGTGG	15347
2227	ACAUCCUA A CCUUAAAG	6599	CTTTAAGG GGCTAGCTACAACGA TAGGATGT	15348
2227 2218 2210	ACAUCCUA A CCUUAAAG CCUUAAAG A UGGAAAAA	6599 6600	CTTTAAGG GGCTAGCTACAACGA TAGGATGT TTTTTCCA GGCTAGCTACAACGA CTTTAAGG ACTGTCAA GGCTAGCTACAACGA TTTTCCAT	15348 15349

2020					
	2206	AAAAAUUG A CAGUGCAG	6602	CTGCACTG GGCTAGCTACAACGA CAATTTTT	
1915 GUICAGGG G UNGUICCA 6605 TEGENCTE GGCTAGCTRCAACGA CCTCRCC 15351			6603		15352
1919			6604	TACCCCTG GGCTAGCTACAACGA ACTGTCAA	15353
1919 GGGGIRGU G CCRAAGCC 6607 GCCTTTEG GGCTAGCTRCAACGA ACTACCCC 15356	<u> </u>		6605	TGGCACTA GGCTAGCTACAACGA CCCTGCAC	15354
1916 GUIGCCARA G CCUGUILIG 6609 CATACAGG GICTAGCTRACAGA TTTGGCAC 15357 15358 CARAGCCU G UAUGGGUIA 6609 TACCCATA GICTAGCTRACAGA AGGCTTTG 15358 15358 AGGCCUGU A UGGGUIGUA 66010 ACTACCCA GICTAGCTRACAGA ACAGCCTTTG 15359 12174 CUGUINIGG G UAGUCAAC 6611 GTTGACTA GICTAGCTRACAGA ACAGCCTT 15359 12174 CUGUINIGG G UAGUCAAC 6611 GTTGACTA GICTAGCTRACAGA TACCCATA 15361 15167 GGUAGUCA CUATUCAAC 6612 ATTAGTTCA GICTAGCTRACAGA TACCCATA 15362 15167 GGUAGUCA AUGCAUAU 6614 TAGATTCA GICTAGCTRACAGA TACCCATA 15362 15164 AGUCAACUA UGCAUCUA 6614 TAGATTCA GICTAGCTRACAGA ATAGTCA 15362 15162 UCAACUAU GAUCUAGG 6615 CCTAGATG GICTAGCTACACAGA ATAGTTCA 15362 15164 AGUCUAGGU GUIUAACC 6615 CCTAGATG GICTAGCTACACAGA ATAGTTCA 15362 15164 GAUCUAGGU GUIUAACC 6617 GGTTTACA GICTAGCTACACAGA CATAGATGT 15365 15164 GAUCUAGGU GUIUAACCA 6618 TTGGTTAA GIGCTAGCTACACAG ACCTAGAT 15366 15164 AGGUCUAG GUIUAACCA 6619 GGCCTTGG GICTAGCTACACAGA ACCTAGAT 15367	2192		6606	CTTTGGCA GGCTAGCTACAACGA TACCCCTG	15355
1910	2190		6607	GGCTTTGG GGCTAGCTACAACGA ACTACCCC	15356
2178	2184	GUGCCAAA G CCUGUAUG	6608	CATACAGG GGCTAGCTACAACGA TTTGGCAC	15357
2174	2180	CAAAGCCU G UAUGGGUA	6609	TACCCATA GGCTAGCTACAACGA AGGCTTTG	15358
2171	2178	AAGCCUGU A UGGGUAGU	6610	ACTACCCA GGCTAGCTACAACGA ACAGGCTT	15359
2164	2174	CUGUAUGG G UAGUCAAC	6611	GTTGACTA GGCTAGCTACAACGA CCATACAG	15360
2164 AGUCANCU A UGCAUCUA 6614 TAGATGCA GGCTAGCTACAACGA AGTTGACT 15362 2162 UCAACUAU G CAUCUAGG 6615 CCTAGATG GGCTAGCTACAACGA ATAGTTGA 15364 15364 ACUCUAGGU G UCUAGGU 6616 CACCTAGA GGCTAGCTACAACGA ATAGTTGA 15366 2154 GCAUCUAG G UGUUAACC 6617 GGTTAACA GGCTAGCTACAACGA CATAGATT 15365 2154 GCAUCUAG G UGUUAACCA 6618 TTGGTTAA GGCTAGCTACAACGA CATAGATT 15367 2152 AUCUAGGU G UCAACCAA 6618 TTGGTTAA GGCTAGCTACAACGA TACACCT 15367 2148 AGGUGUUA A CCAAGGCC 6619 GGCCTTGG GGCTAGGTACAACGA TACACCT 15368 2142 UAACCAAG G CCCCCAGAC 6620 GTTCGGGG GGCTAGGTACAACGA TACACCT 15369 2135 GGCCCCGA A CCGCACUU 6621 AAGTGCGG GGCTAGGTACAACGA TCGGGGCC 15370 21310 CGAACGC G CACUUUGC 6622 GCAAAGTG GGCTAGCTACAACGA TCGGGGC 15371 2130 CGAACGC A CUUUGCG 6624 CACTTACG GGCTAGCTACAACGA AGGTTCG 15372 2125 CGCCACUUU G CGUAAGUG 6624 CACTTACG GGCTAGCTACAACGA AAGTGCG 15373 2125 CGCCACUUU G CGUAAGUG 6624 CACTTACG GGCTAGCTACAACGA AAAGTGC 15373 2126 CGUAAGUG G CUUCGGG 6625 GCCACTTA GGCTAGCTACAACGA CAAAACTG 15374 2129 UUGCGUAA G UGCCUCG 6626 CGAGGCA GGCTAGCTACAACGA CAAAACTG 15375 2126 CGUAAGUG G CUUCCGG 6627 CCCCGAGG GGCTAGCTACAACGA CACCTACG 15376 2126 CGUAAGUG G CUUCCGG 6628 CGAAGCA GGCTAGCTACAACGA ACCCCAGA 15375 2126 CUUCCGGA 6629 TCCGGAAG GGCTAGCTACAACGA ACCCCGAG 15376 2126 CUUCCGGA 6629 TCCGGAAGCA GGCTAGCTACAACGA ACCCCCGA 15377 2126 CUUCCGAA 6631 CCCCCCGA GGCTAGCTACAACGA ACCCCCGA	2171	UAUGGGUA G UCAACUAU	6612	ATAGTTGA GGCTAGCTACAACGA TACCCATA	15361
1532 10CAACUNUI G CAUCUAGU 6615 CCTAGATE GGCTAGCTACAACGA ATAGTTOA 15364	2167	GGUAGUCA A CUAUGCAU	6613	ATGCATAG GGCTAGCTACAACGA TGACTACC	15362
2160	2164	AGUCAACU A UGCAUCUA	6614	TAGATGCA GGCTAGCTACAACGA AGTTGACT	15363
1514 GCAUCUAG G UGUUAACCA 6617 GGTTARCA GGCTAGCTACAACGA CTAGATGC 15366 2152 AUCUAGGU G UUAACCAA 6618 TIGGTTAA GGCTAGCTACAACGA ACCTAGAT 15367 2142 UAACCAAG C CCAGAC 6619 GGCCTTGG GGCTAGCTACAACGA TACAACCT 15368 2142 UAACCAAG G CCCCGAAC 6620 GTTCGGGG GGCTAGCTACAACGA CTGGGGC 15370 2135 GGCCCCGA A CCGCACUU 6621 AAGTGCGG GGCTAGCTACAACGA CTGGGGGC 15371 2130 CGCACCG C CACUUUGC 6622 GCAAAGTG GGCTACCAACGA CTGGGGGC 15372 2130 CGAACCGC A CUUUGCGU 6623 ACGCAAAG GGCTACAACGA GGTTCGGG GGTAGCTACAACGA GGTTCGG 15372 2125 CCCCCUUU G CGUAAGUG 6624 CACTTACG GGCTAGCTACAACGA GGCGTTCG 15372 2125 CCCACUUU G CGUAAGUG 6624 CACTTACG GGCTAGCTACAACGA GCAAGTG 15373 2123 CACUUUGC G UAAGUGG 6624 CACTTACG GGCTAGCTACAACGA GCAAGTG 15374 2124 UUCCGUAA G UGGCCUCG 6626 CGAGGCCA GGCTAGCTACAACGA CAAAGTGC 15375 2126 CGCACTUU G CUUAGGGG 6627 CCCCGAGG GGCTAGCTACAACGA CAAAGTGC 15375 2126 CUCCGGGG GCCACCGGG GCCACCGAGG GCCACCGAGG CCCCAGAG GCCACCGAGG CCCACCGAGG CCCACCGAG CCCACCGAGG CCCACCGAG CCCACCGAG CCCACCGAG CCCACCGAG CCCACCGAGG CCCACCGAG CCCACCGAGG CCCACCGAG CCCACCGAG CCCACCGAG CCCACCGAG CCCACCGA	2162	UCAACUAU G CAUCUAGG	6615	CCTAGATG GGCTAGCTACAACGA ATAGTTGA	15364
2152 AUCUAGGU G UNAACCAA 6618 TTGGTTAA GGCTACAACGA ACCTAGAT 13367 2148 AGGUUUDA A CCAAGGCC 6619 GGCCTTGG GGCTACCTACAACGA TAACACCT 15369 2142 UAACCAAG G CCCGAAC 6620 GTTCGGGG GGCTACTCAAACGA CTTGGTTA 15369 2135 GGCCCGA A CCGCACUU 6621 AAGTGCGG GGCTACACAACGA TCGGGGCC 15370 2132 CCCGAACC G CACUUUGC 6622 GCAAAGTG GGCTACACAACGA GGTTGGG 15372 2130 CCGAACCG A CUUUGCG 6623 ACGCAAGA GGCTAGCTACAACGA GGTAGGTG 15372 2125 CGCACUUU G CGUAAGUG 6624 CACTTACG GGCTACCAACGA AAAGTGCG 15373 2123 CACUUUGC G UAAGUGG 6626 CCACCTTA GGCTACAACAGA AAAGTGCG 15373 2119 UUGCGUAA G UGCCGGG 6626 CCACGACGA GGCTAGCTACAACGA ATACGCAA 15375 2116 CGUAGGG G UGUCCGG 6626 CCAGCAGG GGCTAGCTACAACGA ACCCGAAG 15376 2106 CUCGGGG G UGCCGUGG 6629 TCCGGAAG GGCTAGCTACAACGA ACCCGAG 15378 2093 CGGAAGCA G UCCGUGG 6630 ACGGCTG GGCTAGCTACAACGA TCCTCCAGA 15	2160	AACUAUGC A UCUAGGUG	6616	CACCTAGA GGCTAGCTACAACGA GCATAGTT	15365
2148	2154	GCAUCUAG G UGUUAACC	6617	GGTTAACA GGCTAGCTACAACGA CTAGATGC	15366
2142 UNACCANG G CCCCGAAC 6620 GTTCGGG GGCTAGCTACAACGA CTTGGTTA 15369 2135 GGCCCCGA A CCCCACUU 6621 AAGTGGG GGCTAGCTACAACGA TCGGGGC 15370 2132 CCCGAACCG C ACUUUGC 6622 GCAAGTG GGCTAGCTACAACGA GGTTCGG 15371 2130 CCGAACCG C ACUUUGC 6623 ACGCAGAG GGCTAGCTACAACGA AAGTGGG 15372 2125 CGCACUUU G CGUAGUG 6624 CACTTACG GGCTAGCTACAACGA AAGTGGG 15373 2123 CACUUUGC G UAAGUGG 6626 CGAGGCCA GGCTAGCTACAACGA AAGTGGG 15375 2119 UUCGGGAG G UGCUUCCG 6626 CGAGGCCA GGCTAGCTACAACGA CACAGGA GTTAGCA 15376 2108 GCCUCGGG G UGCUCCGG 6627 CCCCGAGG GGCTAGCTACAACGA CACCGAGG 15376 2106 CUCGGGG G UGCUCCGG 6628 CCGAGAGA GGCTAGCTACAACGA CCCGAGGC 15376 2106 CUCGGGAG G CUUCCGGA 6629 TCCGGAAG GGCTAGCTACAACAG ACCCCGAGC 15377 2096 UUCCGGAA G UCCGUGG 6630 ACGGACCAG GACCCCAGAA GGCTAGCTACAACAGA TCCCCGAGA 15381 2089 AGCAGUCC G UGGGCAG 6631 CCC	2152	AUCUAGGU G UUAACCAA	6618	TTGGTTAA GGCTAGCTACAACGA ACCTAGAT	15367
2135	2148	AGGUGUUA A CCAAGGCC	6619	GGCCTTGG GGCTAGCTACAACGA TAACACCT	15368
2132	2142	UAACCAAG G CCCCGAAC	6620	GTTCGGGG GGCTAGCTACAACGA CTTGGTTA	15369
2132 CCCGAACC G CACUUUGC 6622 GCAAAGT GGCTACAACGA GGTTCGG 15371 2130 CGAACCGC A CUUUGCU 6623 ACGCAAAG GGCTACATACACGA GCGGTTCG 15372 2125 CGCACUUUG G CUAAGUG 6624 CACTTAC GGCTACAACGA AAAGTGCG 15373 2123 CACUUUGC G UAAGUGC 6625 GCCACTTA GGCTACAACGA GAAAGTG 15374 2119 UUGGGUAA G UGCCUCG 6626 CGAGGCCA GGCTACAACGA CACTTACG 15375 2116 CGUAAGUG G CCUCGGG 6627 CCCCGAGG GGCTACATCAACGA CACTTACG 15376 2108 GCCUCGGG G UCCUCGGG 6628 CGGAAGCA GGCTACACACGA CACTTACG 15376 2106 CUCGGGA G CUCCUCGGA 6629 TCCGGAAG GGCTACAACGA ACCCCGAG 15377 2096 UUCCGGAA G CUCCUGGG 6631 CCCACGGA GGCTACAACGA TCCCCCAGG 15379 2097 CGGAAGCA G UCCUGGG 6631 CCCACGGA GGCTACAACGA TCCCACGGA 15381 2088 JACCAUCC G UGGGCAG 6632 CTGCCCA GGCTACAACGA CTCACCGA 15383 2089 JACCAUCAGA CACTTAA GGCTAGCTACAACGA CCTCACGA 15382	2135	GGCCCCGA A CCGCACUU	6621		
2130 CGRACCGC A CUUUGCGU 6623 ACGCAAAG GGCTAGCTACAACGA GCGGTTCG 15372 2125 CGCACUUU G GUAAGUG 6624 CACTTACG GGCTAGCTACAACGA AAAGTGC 15373 2123 CACUUUGC G UAAGUGG 6625 GCCACTTA GGCTAGCTACAACGA GCAAAGTG 15374 2119 UUGCGUAA G UGCCUCG 6625 CGAGGCCA GGCTAGCTACAACGA CACTTACG 15375 2116 CGUAAGUG G CUUCGGG 6628 CGGAGACCA GCTTACTACAACGA CACTTACG 15376 2108 GCCUCGGG 6629 CCCGGAG GGCTAGCTACAACGA CACCGAGC 15377 2106 CUCGGGAG G CUCCGGA 6629 TCCGGAGA GGCTAGCTACAACGA ACCCCCAG GGCTAGCTACAACGA ACCCCCAG GGCTAGCTACAACGA ACCCCCAGGA 15379 2096 UUCCGGAA G CCCGUGGG 6630 ACGGACTG GCTAGCTACAACGA TCCTCCCA JS380 2089 AGCAGUCC G UGGGCAG 6631 CCCACGGA GGCTAGCTACAACGA CCCACCGA L5382 2084 UCCGUGGG C CAGGUNAA 6633 TTACCTG GGCTAGCTACAACGA CCCACCGA L5382 2084 UCGGGAG G UUAAGGUG 6634 CACCTTAA GGCTACAACGA CTTAACCT L5384 2072 GUUAAGGU G UUCGUACC 6636 GGTAACGA GGCTAGCTACAACGA ACCTTAAC 15383 <td>2132</td> <td>CCCGAACC G CACUUUGC</td> <td>6622</td> <td></td> <td></td>	2132	CCCGAACC G CACUUUGC	6622		
2125 CGCACUUU G CUAAGUGG 6624 CACTTACG GGCTACAACGA AAAGTGCG 15373 2123 CACUUUG G UAAGUGGC 6625 GCCACTTA GGCTACAACGA GAAAGTG 15374 2119 UUGGGUAA G UGGCCUCG 6626 CCGAGGCA GGCTAGCTACAACGA CACTTACG 15375 2116 CGUAGUG G CUCCGGG 6627 CCCCGAGG GGCTAGCTACAACGA CACTTACG 15376 2108 GCCUCGGG G UCUUCCGA 6628 CGGAAGCA GGCTAGCTACAACGA CCCCGAG 15377 2106 CUCGGGA G CUUCCGGA 6629 TCCGGAAG GGCTAGCTACAACGA CCCCGAG 15378 2096 UUCCGGAA G CAGUCCGU 6630 ACGGACTG GGCTAGCTACAACGA TCCCCCAG 15378 2093 CGGAAGCA G UCCGUGG 6631 CCCACGGA GGCTAGCTACAACGA TCCTCCG 15380 2084 UCCGUGGG G CAGGUUAA 6631 CTCCCCA GGCTAGCTACAACGA CTCTCCCCA 15382 2084 UCCGUGGG G CAGGUUAA 6633 TTAACCTG GGCTAGCTACAACGA CTCCCCCA 15382 2080 UGGGGCAG G UUAAGGU 6634 CACCTTAA GGCTACAACGA CTCCCCCA 15382 2072 GUUAAGGU G UUCCGCC 6633 TTAACGA GGCTAGCTACAACGA CTTAACCT 1	2130	CGAACCGC A CUUUGCGU	6623		
2123 CACUUUGC G UAAGUGGC 6625 GCCACTTA GGCTAGCTACAACGA GCAAAGTG 15374 2119 UUGGGUAA G UGGCCUCG 6626 CGAGGCCA GGCTAGCTACAACGA TATACGCAA 15375 2116 CGUAAGUG G CCUCGGG 6627 CCCCCAGG GGCTAGCTACAACGA CACTTACG 15376 2108 GCCUCGGG G UGCUUCCG 6628 CGGAAGCA GGCTAGCTACAACGA CCCGAGG 15377 2106 CUCGGGG G UCUCCGGA 6629 TCCGGAAG GGCTAGCTACAACGA ACCCCGAG 15378 2096 UUCCGGAA G CAGUCCGU 6630 ACGGATG GGCTAGCTACAACGA TCCTCCG 15380 2093 CCGGAAGCA G UCCGUGGG 6631 CCCACGGA GGCTAGCTACAACGA TCCTCCCC 15380 2084 UCCGUGGG G CAGGUUAA 6632 CTGCCCCA GGCTAGCTACAACGA CGACTGCT 15381 2084 UCCGUGGG G CAGGUUAA 6633 TTAACCTG GGCTAGCTACAACGA CTCACCCA 15382 2074 AGGUUAAG G UGCUUAC 6636 GGTAACGA GGCTAGCTACAACGA CTTAACCT 15385 2072 GUUAAGGU G UACCGGC 6637 GCCGGTAA GGCTAGCTACAACGA ACCCTT 15386 2062 CAGGUGUU G UACCGGC 6637 GCCGCAGG GGCTAGCTACAACGA ACCACTT <td>2125</td> <td>CGCACUUU G CGUAAGUG</td> <td>6624</td> <td></td> <td></td>	2125	CGCACUUU G CGUAAGUG	6624		
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CCCCCCG A UGUUGCAC 6640 GTGCAACA GGCTAGCTACAACGA CGGGGGG 15389 2051 CCCCCGAU G UUGCACGG 6641 CCGTGCAA GGCTAGCTACAACGA ATCGGGGG 15390 2048 CCGAUGUU G CACGGGGG 6642 CCCCCGTG GGCTAGCTACAACGA ATCGGGGG 15391 2046 GAUGUUGC A CGGGGGC 6643 GCCCCCCG GGCTAGCTACAACGA GCAACATC 15392 2039 CACGGGGG G CCCCCGCA 6644 TGCGGGGG GGCTAGCTACAACGA CCCCCGTG 15393 2033 GGGCCCCC G CACGUCUU 6645 AAGACGTG GGCTAGCTACAACGA CCCCCGTG 15394 2031 GCCCCCGC A CGUCUUG 6646 CCAAGACG GGCTAGCTACAACGA GCGGGGCC 15394 2031 GCCCCCGC A CGUCUUGG 6646 CCAAGACG GGCTAGCTACAACGA GCGGGGCC 15395 2029 CCCCGCAC G UCUUGGUG 6647 CACCAAGA GGCTAGCTACAACGA GTGCGGGG 15396 2023 ACGUCUUG G UGAACCCA 6648 TGGGTTCA GGCTAGCTACAACGA CAAGACGT 15397 2019 CUUGGUGA A CCCAGUGC 6649 GCACTGGG GGCTAGCTACAACGA TCACCAAG 15398 2014 UGAACCCA G UGCCAUUC 6650 GAATGGCA GGCTAGCTACAACGA TCACCAAG 15398 2012 AACCCAGU G CCAUUCAU 6651 ATGAATGG GGCTAGCTACAACGA ACTGGGTT 15400 2009 CCAGUGCC A UUCAUCCA 6652 TGGATGAA GGCTAGCTACAACGA GGCACTGG 15401 2005 UGCCAUUC A UCCAUGUG 6653 CACATGGA GGCTAGCTACAACGA GAATGGCA 15402 2001 AUUCAUCC A UGUGCAGC 6654 GCTGCACA GGCTAGCTACAACGA GAATGGCA 15403 1999 UCAUCCAU G UGCAGCCG 6655 CGGCTGCA GGCTAGCTACAACGA ACTGGAT 15404 1997 AUCCAUGU G CAGCCGAA 6656 TTCGGCTG GGCTAGCTACAACGA ACATGGAT 15405					
CCCCGGAU G UUGCACGG 6641 CCGTGCAA GGCTAGCTACAACGA ATCGGGGG 15390 2048 CCGAUGUU G CACGGGGG 6642 CCCCCGTG GGCTAGCTACAACGA AACATCGG 15391 2046 GAUGUUGC A CGGGGGGC 6643 GCCCCCCG GGCTAGCTACAACGA CCACACATC 15392 2039 CACGGGGG G CCCCCGCA 6644 TGCGGGGG GGCTAGCTACAACGA CCCCCGTG 15393 2033 GGGCCCCC G CACGUCUU 6645 AAGACGTG GGCTAGCTACAACGA GCGGGGCCC 15394 2031 GCCCCCGC A CGUCUUGG 6646 CCAAGACG GGCTAGCTACAACGA GCGGGGCC 15394 2029 CCCCGCAC G UCUUGGUG 6647 CACCAAGA GGCTAGCTACAACGA GCGGGGC 15396 2029 CCCCGCAC G UCUUGGUG 6648 TGGGTTCA GGCTAGCTACAACGA GTGCGGGG 15396 2020 ACGUCUUG G UGAACCCA 6648 TGGGTTCA GGCTAGCTACAACGA CAAGACGT 15397 2019 CUUGGUGA A CCCAGUGC 6649 GCACTGGG GGCTAGCTACAACGA TCACCAAG 15398 2014 UGAACCCA G UGCCAUUC 6650 GAATGGCA GGCTAGCTACAACGA TGGGTTCA 15399 2012 AACCCAGU G CCAUUCAU 6651 ATGAATGG GGCTAGCTACAACGA ACTGGGTT 15400 2009 CCAGUGCC A UUCAUCCA 6652 TGGATGAA GGCTAGCTACAACGA GGACTGG 15401 2005 UGCCAUUC A UCCAUGUG 6653 CACATGGA GGCTAGCTACAACGA GAATGGCA 15402 2001 AUUCAUC A UGUGCAGC 6654 GCTGCACA GGCTAGCTACAACGA GGATGAAT 15403 1999 UCAUCCAU G UGCAGCCG 6655 CGGCTGCA GGCTAGCTACAACGA ATGGATGA 15404 1997 AUCCAUGU G CAGCCGAA 6656 TTCGGCTG GGCTAGCTACAACGA ACTGGAT 15405					
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CACGGGGG G CCCCCGCA 6644 TGCGGGGG GGCTAGCTACAACGA CCCCCGTG 15393 GGGCCCCC G CACGUCUU 6645 AAGACGTG GGCTAGCTACAACGA GGGGGCCC 15394 2031 GCCCCCGC A CGUCUUGG 6646 CCAAGACG GGCTAGCTACAACGA GCGGGGGC 15395 2029 CCCCGCAC G UCUUGGUG 6647 CACCAAGA GGCTAGCTACAACGA GTGCGGGG 15396 2023 ACGUCUUG G UGAACCCA 6648 TGGGTTCA GGCTAGCTACAACGA CAAGACGT 15397 2019 CUUGGUGA A CCCAGUGC 6649 GCACTGGG GGCTAGCTACAACGA TCACCAAG 15398 2014 UGAACCCA G UGCCAUUC 6650 GAATGGCA GGCTAGCTACAACGA TGGGTTCA 15399 2012 AACCCAGU G CCAUUCAU 6651 ATGAATGG GGCTAGCTACAACGA ACTGGGTT 15400 2009 CCAGUGCC A UUCAUCCA 6652 TGGATGAA GGCTAGCTACAACGA GGCACTGG 15401 2005 UGCCAUUC A UCCAUGUG 6653 CACATGGA GGCTAGCTACAACGA GAATGGCA 15402 2001 AUUCAUCC A UGUGCAGC 6654 GCTGCACA GGCTAGCTACAACGA GAATGGCA 15403 1999 UCAUCCAU G UGCAGCCG 6655 CGGCTGCA GGCTAGCTACAACGA ATGGATGA 15404 1997 AUCCAUGU G CAGCCGAA 6656 TTCGGCTG GGCTAGCTACAACGA ACATGGAT 15405					
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2012 AACCCAGU G CCAUUCAU 6651 ATGAATGG GGCTAGCTACAACGA ACTGGGTT 15400 2009 CCAGUGCC A UUCAUCCA 6652 TGGATGAA GGCTAGCTACAACGA GGCACTGG 15401 2005 UGCCAUUC A UCCAUGUG 6653 CACATGGA GGCTAGCTACAACGA GAATGGCA 15402 2001 AUUCAUCC A UGUGCAGC 6654 GCTGCACA GGCTAGCTACAACGA GGATGAAT 15403 1999 UCAUCCAU G UGCAGCCG 6655 CGGCTGCA GGCTAGCTACAACGA ATGGATGA 15404 1997 AUCCAUGU G CAGCCGAA 6656 TTCGGCTG GGCTAGCTACAACGA ACATGGAT 15405					
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2005 UGCCAUUC A UCCAUGUG 6653 CACATGGA GGCTAGCTACAACGA GAATGGCA 15402 2001 AUUCAUCC A UGUGCAGC 6654 GCTGCACA GGCTAGCTACAACGA GGATGAAT 15403 1999 UCAUCCAU G UGCAGCCG 6655 CGGCTGCA GGCTAGCTACAACGA ATGGATGA 15404 1997 AUCCAUGU G CAGCCGAA 6656 TTCGGCTG GGCTAGCTACAACGA ACATGGAT 15405					
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1997 AUCCAUGU G CAGCCGAA 6656 TTCGGCTG GGCTAGCTACAACGA ACATGGAT 15405					
1994 CAUGUGCA G CCGAACCA 6657 TGGTTCGG GGCTAGCTACAACGA TGCACATG 15406					15405
	1994	CAUGUGCA G CCGAACCA	6657	TGGTTCGG GGCTAGCTACAACGA TGCACATG	15406

1989	GCAGCCGA A CCAGUUGC	6658	GCAACTGG GGCTAGCTACAACGA TCGGCTGC	15407
1985	CCGAACCA G UUGCCUUG	6659	CAAGGCAA GGCTAGCTACAACGA TGGTTCGG	15408
1982	AACCAGUU G CCUUGCGG	6660	CCGCAAGG GGCTAGCTACAACGA AACTGGTT	15409
1977	GUUGCCUU G CGGCGGCC	6661	GGCCGCCG GGCTAGCTACAACGA AAGGCAAC	15410
1974	GCCUUGCG G CGGCCGCG	6662	CGCGGCCG GGCTAGCTACAACGA CGCAAGGC	15411
1971	UUGCGGCG G CCGCGUGU	6663	ACACGCGG GGCTAGCTACAACGA CGCCGCAA	15412
1968	CGGCGGCC G CGUGUUGU	6664	ACAACACG GGCTAGCTACAACGA GGCCGCCG	15413
1966	GCGGCCGC G UGUUGUUG	6665	CAACAACA GGCTAGCTACAACGA GCGGCCGC	15414
1964	GGCCGCGU G UUGUUGAG	6666	CTCAACAA GGCTAGCTACAACGA ACGCGGCC	15415
1961	CGCGUGUU G UUGAGGAG	6667	CTCCTCAA GGCTAGCTACAACGA AACACGCG	15416
1953	GUUGAGGA G CAGCACGU	6668	ACGTGCTG GGCTAGCTACAACGA TCCTCAAC	15417
1950	GAGGAGCA G CACGUCCG	6669	CGGACGTG GGCTAGCTACAACGA TGCTCCTC	15418
1948	GGAGCAGC A CGUCCGUC	6670	GACGGACG GGCTAGCTACAACGA GCTGCTCC	
	AGCAGCAC G UCCGUCUC			15419
1946		6671	GAGACGGA GGCTAGCTACAACGA GTGCTGCT	15420
1942	GCACGUCC G UCUCGUUC	6672	GAACGAGA GGCTAGCTACAACGA GGACGTGC	15421
1937	UCCGUCUC G UUCGCCCC	6673	GGGGCGAA GGCTAGCTACAACGA GAGACGGA	15422
1933	UCUCGUUC G CCCCCAG	6674	CTGGGGG GGCTAGCTACAACGA GAACGAGA	15423
1925	GCCCCCA G UUAUACGU	6675	ACGTATAA GGCTAGCTACAACGA TGGGGGGC	15424
1922	CCCCAGUU A UACGUGGG	6676	CCCACGTA GGCTAGCTACAACGA AACTGGGG	15425
1920	CCAGUUAU A CGUGGGGG	6677	CCCCCACG GGCTAGCTACAACGA ATAACTGG	15426
1918	AGUUAUAC G UGGGGGCG	6678	CGCCCCCA GGCTAGCTACAACGA GTATAACT	15427
1912	ACGUGGGG G CGCCGAAA	6679	TTTCGGCG GGCTAGCTACAACGA CCCCACGT	15428
1910	GUGGGGC G CCGAAACG	6680	CGTTTCGG GGCTAGCTACAACGA GCCCCCAC	15429
1904	GCGCCGAA A CGGUCGGU	6681	ACCGACCG GGCTAGCTACAACGA TTCGGCGC	15430
1901	CCGAAACG G UCGGUCGU	6682	ACGACCGA GGCTAGCTACAACGA CGTTTCGG	15431
1897	AACGGUCG G UCGUCCCC	6683	GGGGACGA GGCTAGCTACAACGA CGACCGTT	15432
1894	GGUCGGUC G UCCCCACC	6684	GGTGGGGA GGCTAGCTACAACGA GACCGACC	15433
1888	UCGUCCCC A CCACAACA	6685	TGTTGTGG GGCTAGCTACAACGA GGGGACGA	15434
1885	UCCCCACC A CAACAGGG	6686	CCCTGTTG GGCTAGCTACAACGA GGTGGGGA	15435
1882	CCACCACA A CAGGGCUU	6687	AAGCCCTG GGCTAGCTACAACGA TGTGGTGG	15436
1877	ACAACAGG G CUUGGGGU	6688	ACCCCAAG GGCTAGCTACAACGA CCTGTTGT	15437
1870	GGCUUGGG G UGAAGCAA	6689	TTGCTTCA GGCTAGCTACAACGA CCCAAGCC	15438
1865	GGGGUGAA G CAAUACAC	6690	GTGTATTG GGCTAGCTACAACGA TTCACCCC	15439
1862	GUGAAGCA A UACACUGG	6691	CCAGTGTA GGCTAGCTACAACGA TGCTTCAC	15440
1860	GAAGCAAU A CACUGGAC	6692	GTCCAGTG GGCTAGCTACAACGA ATTGCTTC	
1858	AGCAAUAC A CUGGACCA			15441
-		6693	TGGTCCAG GGCTAGCTACAACGA GTATTGCT	15442
1853	UACACUGG A CCACAUAC	6694	GTATGTGG GGCTAGCTACAACGA CCAGTGTA	15443
1850	ACUGGACC A CAUACCUG	6695	CAGGTATG GGCTAGCTACAACGA GGTCCAGT	15444
1848	UGGACCAC A UACCUGCG	6696	CGCAGGTA GGCTAGCTACAACGA GTGGTCCA	15445
1846	GACCACAU A CCUGCGAU	6697	ATCGCAGG GGCTAGCTACAACGA ATGTGGTC	15446
1842	ACAUACCU G CGAUGCGG	6698	CCGCATCG GGCTAGCTACAACGA AGGTATGT	15447
1839	UACCUGCG A UGCGGGUA	6699	TACCCGCA GGCTAGCTACAACGA CGCAGGTA	15448
1837	CCUGCGAU G CGGGUACG	6700	CGTACCCG GGCTAGCTACAACGA ATCGCAGG	15449
1833	CGAUGCGG G UACGAUAC	6701	GTATCGTA GGCTAGCTACAACGA CCGCATCG	15450
1831	AUGCGGGU A CGAUACCA	6702	TGGTATCG GGCTAGCTACAACGA ACCCGCAT	15451
1828	CGGGUACG A UACCACAC	6703	GTGTGGTA GGCTACCTACAACGA CGTACCCG	15452
1826	GGUACGAU A CCACACGG	6704	CCGTGTGG GGCTAGCTACAACGA ATCGTACC	15453
1823	ACGAUACC A CACGGCCG	6705	CGGCCGTG GGCTAGCTACAACGA GGTATCGT	15454
1821	GAUACCAC A CGGCCGCG	6706	CGCGGCCG GGCTAGCTACAACGA GTGGTATC	15455
1818	ACCACACG G CCGCGGUG	6707	CACCGCGG GGCTAGCTACAACGA CGTGTGGT	15456
1815	ACACGGCC G CGGUGCGU	6708	ACGCACCG GGCTAGCTACAACGA GGCCGTGT	15457
1812	CGGCCGCG G UGCGUAGU	6709	ACTACGCA GGCTAGCTACAACGA CGCGGCCG	15458
1810	GCCGCGGU G CGUAGUGC	6710	GCACTACG GGCTAGCTACAACGA ACCGCGGC	15459
1808	CGCGGUGC G UAGUGCCA	6711	TGGCACTA GGCTAGCTACAACGA GCACCGCG	15460
1805	GGUGCGUA G UGCCAGCA	6712	TGCTGGCA GGCTAGCTACAACGA TACGCACC	15461
1803	UGCGUAGU G CCAGCAAU	6713	ATTGCTGG GGCTAGCTACAACGA ACTACGCA	
		0,13	GGCTAGCTACAACGA ACTACGCA	15462

1799 UAGUGCCA G CAAUA			1 1 5 1 5 3
1796 UGCCAGCA A UAGGG		CCCTATTG GGCTAGCTACAACGA TGGCACTA AGGCCCTA GGCTAGCTACAACGA TGCTGGCA	15463 15464
1791 GCAAUAGG G CCUCU		ACCAGAGG GGCTAGCTACAACGA CCTATTGC	15465
1784 GGCCUCUG G UCCGA			
<u> </u>		AACTCGGA GGCTAGCTACAACGA CAGAGGCC	15466
		GGCCACAA GGCTAGCTACAACGA TCGGACCA	15467
		GAGGGCCA GGCTAGCTACAACGA AACTCGGA	15468
1772 GAGUUGUG G CCCUC		ACCGAGGG GGCTAGCTACAACGA CACAACTC	15469
1765 GGCCCUCG G UGUAG		CACCTACA GGCTAGCTACAACGA CGAGGGCC	15470
1763 CCCUCGGU G UAGGU		ATCACCTA GGCTAGCTACAACGA ACCGAGGG	15471
1759 CGGUGUAG G UGAUA		TCCTATCA GGCTAGCTACAACGA CTACACCG	15472
1756 UGUAGGUG A UAGGA		GGGTCCTA GGCTAGCTACAACGA CACCTACA	15473
1751 GUGAUAGG A CCCCA		GGGTGGGG GGCTAGCTACAACGA CCTATCAC	15474
1746 AGGACCCC A CCCCU		CTCAGGGG GGCTAGCTACAACGA GGGGTCCT	15475
1738 ACCCCUGA G CGAAC		CAAGTTCG GGCTAGCTACAACGA TCAGGGGT	15476
1734 CUGAGCGA A CUUGU	CAA 6728	TTGACAAG GGCTAGCTACAACGA TCGCTCAG	15477
1730 GCGAACUU G UCAAU	GGA 6729	TCCATTGA GGCTAGCTACAACGA AAGTTCGC	15478
1726 ACUUGUCA A UGGAG	CGG 6730	CCGCTCCA GGCTAGCTACAACGA TGACAAGT	15479
1721 UCAAUGGA G CGGCA	GCU 6731	AGCTGCCG GGCTAGCTACAACGA TCCATTGA	15480
1718 AUGGAGCG G CAGCU	GGC 6732	GCCAGCTG GGCTAGCTACAACGA CGCTCCAT	15481
1715 GAGCGGCA G CUGGC	CAA 6733	TTGGCCAG GGCTAGCTACAACGA TGCCGCTC	15482
1711 GGCAGCUG G CCAAG	CGC 6734	GCGCTTGG GGCTAGCTACAACGA CAGCTGCC	15483
1706 CUGGCCAA G CGCUG	UGG 6735	CCACAGCG GGCTAGCTACAACGA TTGGCCAG	15484
1704 GGCCAAGC G CUGUG	GGC 6736	GCCCACAG GGCTAGCTACAACGA GCTTGGCC	15485
1701 CAAGCGCU G UGGGC	AUC 6737	GATGCCCA GGCTAGCTACAACGA AGCGCTTG	15486
1697 CGCUGUGG G CAUCO	GGA 6738	TCCGGATG GGCTAGCTACAACGA CCACAGCG	15487
1695 CUGUGGGC A UCCGG	ACG 6739	CGTCCGGA GGCTAGCTACAACGA GCCCACAG	15488
1689 GCAUCCGG A CGAGU	UGA 6740	TCAACTCG GGCTAGCTACAACGA CCGGATGC	15489
1685 CCGGACGA G UUGAA	CCU 6741	AGGTTCAA GGCTAGCTACAACGA TCGTCCGG	15490
1680 CGAGUUGA A CCUGU	GUG 6742	CACACAGG GGCTAGCTACAACGA TCAACTCG	15491
1676 UUGAACCU G UGUGC	AUA 6743	TATGCACA GGCTAGCTACAACGA AGGTTCAA	15492
1674 GAACCUGU G UGCAU	AGA 6744	TCTATGCA GGCTAGCTACAACGA ACAGGTTC	15493
1672 ACCUGUGU G CAUAG	AAC 6745	GTTCTATG GGCTAGCTACAACGA ACACAGGT	15494
1670 CUGUGUGC A UAGAA	CAG 6746	CTGTTCTA GGCTAGCTACAACGA GCACACAG	15495
1665 UGCAUAGA A CAGUG	CAG 6747	CTGCACTG GGCTAGCTACAACGA TCTATGCA	15496
1662 AUAGAACA G UGCAG	CAA 6748	TTGCTGCA GGCTAGCTACAACGA TGTTCTAT	15497
1660 AGAACAGU G CAGCA		CATTGCTG GGCTAGCTACAACGA ACTGTTCT	15498
1657 ACAGUGCA G CAAUG		GTTCATTG GGCTAGCTACAACGA TGCACTGT	15499
1654 GUGCAGCA A UGAAC		CGGGTTCA GGCTAGCTACAACGA TGCTGCAC	15500
1650 AGCAAUGA A CCCGG		AAACCGGG GGCTAGCTACAACGA TCATTGCT	15501
1645 UGAACCCG G UUUGG		CCTCCAAA GGCTAGCTACAACGA CGGGTTCA	15502
1634 UGGAGGGA G UCAUU		TGCAATGA GGCTAGCTACAACGA TCCCTCCA	15503
1631 AGGGAGUC A UUGCA		AACTGCAA GGCTAGCTACAACGA GACTCCCT	15504
1628 GAGUCAUU G CAGUU		CTGAACTG GGCTAGCTACAACGA AATGACTC	15505
1625 UCAUUGCA G UUCAG		GCCCTGAA GGCTAGCTACAACGA TGCAATGA	15506
1618 AGUUCAGG G CAGUC		CAGGACTG GGCTAGCTACAACGA CCTGAACT	15507
1615 UCAGGGCA G UCCUG		TAACAGGA GGCTAGCTACAACGA CCTGAACT	
1610 GCAGUCCU G UUAAU		CACATTAA GGCTAGCTACAACGA AGGACTGC	15508
1606 UCCUGUUA A UGUGC		CTGGCACA GGCTAGCTACAACGA AGGACTGC CTGGCACA GGCTAGCTACAACGA TAACAGGA	15509
1604 CUGUUAAU G UGCCA			15510
1602 GUUAAUGU G CCAGC		AGCTGGCA GGCTAGCTACAACGA ATTAACAG	15511
1598 AUGUGCCA G CUGCC		GCAGCTGG GGCTAGCTACAACGA ACATTAAC	15512
1595 UGCCAGCU G CCGUU		AACGGCAG GGCTAGCTACAACGA TGGCACAT	15513
1592 CAGCUGCC G UUGGU		ACCAACGG GGCTAGCTACAACGA AGCTGGCA	15514
		AACACCAA GGCTAGCTACAACGA GGCAGCTG	15515
1588 UGCCGUUG G UGUUA		TATTAACA GGCTAGCTACAACGA CAACGGCA	15516
1586 CCGUUGGU G UUAAU		CTTATTAA GGCTAGCTACAACGA ACCAACGG	15517
1582 UGGUGUUA A UAAGC	UGG 6769	CCAGCTTA GGCTAGCTACAACGA TAACACCA	15518

1578 GOUANDAR G COUGNULU 5770 ATRICCOR GESTALCTACANGA TOCOGCTTA 15512 1571 AGCUGGAN A UUCUGAGA 6771 TOTAGAGATA GESTALCTACANGA COCCOTTA 15521 1551 AGCUGGAN A UUCUGAGA 6772 TOTAGAGATA GESTALCTACANGA ATCCAGCT 15521 1551 UCUGAGAU G CUCCAGAD 6773 TOTAGAGA GESTALCTACAGAGA ATCCAGCT 15521 1551 UCUGAGAU G CUCCAGAD 6774 ATCTGGAGA GESTALCTACAGAGA ATCCAGAT 15521 1551 UCUGAGAU G CUCCAGAD 6775 TOTTACAG GGTAGACTACAAGGA ATCTCAGA 15521 1552 CUCCAGAU G UANAGAG 6776 CCTCTTTA GGCTAGACTACAAGGA TACTGAGAG 15525 1552 CUCCAGAU G UANAGAGG 6776 CCTCTTTA GGCTAGACGA CACCTCAGACA 15525 1552 CUCCAGAU G UANAGAGG 6776 CCTCTTTA GGCTAGACGA CACCTCTT 15527 1557 GOGANUCC A CCCULCUA 6777 TAGTGAGG GGCTAGACGAG ACTCCACGA ATCCCCCT 15527 GOGANUCC A CCCULCUA 6778 TAGTGAGG GGCTAGACGAGA ATCCCCCT 15527 15527 GOGANUCC A CCCULCUA 6778 TAGTGAGG GGCTAGACGAGA ATCCCCCT 15528 CCCUACUA G UGGUGUGG 6780 ACCACCAG GGCTAGACGAGAGAGAGAGAGAGAGAGAGAGAGAGAGAGA	7.550	CITIZA NIA A CITICANIA	C 220	A THAT TO COME COME CAR COME COME TO THE TOTAL OF	75510
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1540		ļ	6776	CCTCTTTA GGCTAGCTACAACGA ATCTGGAG	15525
1537				GGGTGGCA GGCTAGCTACAACGA CCCTCTTT	15526
1532	1540	AGAGGGAU G CCACCCUA	6778		15527
1528	1537	GGGAUGCC A CCCUACUA	6779	TAGTAGGG GGCTAGCTACAACGA GGCATCCC	15528
1525	1532	GCCACCCU A CUAGUGGU	6780	ACCACTAG GGCTAGCTACAACGA AGGGTGGC	15529
1523	1528	CCCUACUA G UGGUGUGG	6781	CCACACCA GGCTAGCTACAACGA TAGTAGGG	15530
1520	1525	UACUAGUG G UGUGGCCC	6782	GGGCCACA GGCTAGCTACAACGA CACTAGTA	15531
1515	1523	CUAGUGGU G UGGCCCUG	6783	CAGGGCCA GGCTAGCTACAACGA ACCACTAG	15532
1513	1520	guggugug g cccugcgc	6784	GCGCAGGG GGCTAGCTACAACGA CACACCAC	15533
1504	1515	GUGGCCCU G CGCCCCCC	6785	GGGGGCG GGCTAGCTACAACGA AGGGCCAC	15534
1501	1513	GGCCCUGC G CCCCCCCU	6786	AGGGGGG GGCTAGCTACAACGA GCAGGGCC	15535
1499	1504	CCCCCCU G UCGUGUAG	6787	CTACACGA GGCTAGCTACAACGA AGGGGGGG	15536
1499	1501	CCCCUGUC G UGUAGGUG	6788	CACCTACA GGCTAGCTACAACGA GACAGGGG	15537
1493	1499	CCUGUCGU G UAGGUGUC	6789	GACACCTA GGCTAGCTACAACGA ACGACAGG	
1493	1495	UCGUGUAG G UGUCCCCG	6790	CGGGGACA GGCTAGCTACAACGA CTACACGA	15539
1487 GUGUCCCC G UCAACGCC 6792 GGCGTTGA GGCTACAACGA GGGGACAC 15541 1483 CCCGGUCA A CGCGGCAA 6794 TTGCCGGC GGCTAGCTACAACGA TGACGGGG 15542 1481 CCGGCCAA 6794 TTTGCCG GGCTAACCGA CGCGCTACACGA GTTGACGG 15543 1477 CAACGCCG G CAAAGAGU 6795 ACTCTTTG GGCTAGCTACAACGA CGCGTTG 15544 1470 GGCAAAGA G UAGCAAA 6796 TGATGCTA GGCTAGCTACAACGA TCTTTGCC 15545 1467 AAAGAGUA G CUCACAA 6797 TTGTGATG GGCTAGCTACAACGA TCTTTTC 15546 1468 AGAGUAGC A UCACAA 6799 GTTGATTG GGCTAGCTACAACGA GTCACTC 15547 1462 GUAGCAUC A CAACCC 6800 GGTGTTGA GGCTAGCTACAACGA GTTGATTGC 15548 1455 CACAUCAA C A CCCUUAG 6801 CTAAGGTG GGCTAGCTACAACGA TGATTGT 15550 1453 CAAUCAA C A CCCUUAGC 6802 GGCTAAGG GGCTAGCTACAACGA TAAGGTTTGT 15551 1442 UUAGCCCA G UUCCCAC 6803 GAACTGGG GGCTAGCTACAACGA TAAGGTTTGT 15552 1442 UUAGCCCA G UUCCCAC <t>6804 GTGGGAA GGCTACAACGA TCATCGA <</t>	1493	GUGUAGGU G UCCCCGUC	6791	GACGGGGA GGCTAGCTACACGA ACCTACAC	
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		CUUGUGGG A UCCGGAGC	6823	GCTCCGGA GGCTAGCTACAACGA CCCACAAG	15572
1350 CCGGAGCA A CUGCGAUA 6825 TATCGCAG GGCTAGCTACAACGA TGCTCCGG 15574	1353	GAUCCGGA G CAACUGCG	6824	CGCAGTTG GGCTAGCTACAACGA TCCGGATC	15573
	1350	CCGGAGCA A CUGCGAUA	6825	TATCGCAG GGCTAGCTACAACGA TGCTCCGG	15574

1344 CACAUGG & CGAUACCA 6926 TOSTATICE GOTTAGCTACAGGA GOTTGCTC 15575 1342 ACUUGGAU & CCACUAGG 6827 TOSTATICE GOTTAGCTACAGGA GOCATTO 15576 1343 ACUUGGAU & CCACUAGG 6828 ACCTAGTGG GOTTAGCTACAGGA GOTTAGCT 15577 1339 CGAUACCA & CUGUGUGU 6831 TACAACCA GOCTAGCTACAGGA GOTTAGCT 15578 1330 CTAGGGCU & GUGUGUGU 6831 TACAACCA GOCTAGCTACAGGA GOTTAGCT 15579 1321 COGUGUGU & UAGGUGAC 6832 OTCACCTA GOCTAGCTACAGGA GOCTAGCTAG 15581 1322 GUGUGUG & GUGUGUG 6831 ACCTACAA GOCTAGCTACAACGA ACCCCTAG 15581 1323 UGUUGUGAG & GOGCAGU 6833 ATTGGTCA GOCTAGCTACAACGA ACCCTACA 15581 1320 UGUUGUGAG & GOGCAGU 6834 TOATATTO GOCTAGCTACAACGA ACCCCTACA 15581 1321 OGUGUGU & UAGGUGAC 6834 TOATATTO GOCTAGCTACAACGA ACCCTACA 15581 1322 OCAAGUCA & UUCAUCAU 6835 ATGATGA GOCTAGCTACAACGA ACCTACA 15581 1324 ACCAAGUCA & UUCAUCAU 6835 ATGATGA GOCTAGCTACAACGA ACTAGCAC 15581 1326 OCAAGUCA & UUCAUCAU 6837 TOATATTO GOCTAGCTACAACGA ACTAGCAT 15581 1327 AUUCAUCA & UUCAUCAU 6838 TOATATGA GOCTAGCTACAACGA ATTGGTCA 1328 AUUCAUCA & UUCAUCAU 6838 TOATATGA GOCTAGCTACAACGA ATTGGTCA 1329 AUUCAUCA & UUCAUCAU 6839 TOATATGA GOCTAGCTACAACGA ATTGATGA 15580 1320 AUUCAUCA & UUCAUCAU 6839 TOATATGA GOCTAGCTACAACGA ATTGATGA 15580 1324 CCCAAGCC & UGCCAAGG 6839 GCTTGGGA GOCTAGCTACAACGA ATTGATGA 15580 1325 CAAGCCAI & GOCCAGUGA 6840 TOCTAGCA GOCTAGCACACAGA ATTGATGA 15580 1226 CAAGCCAI & GOCCAGUGA 6841 CCATCGCA GOCTAGCTACAACGA ATTGATGA 15581 1227 CAAGCCAI & GOCGAGGG 6841 CCATCGCA GOCTAGCACACAGA ATTGATGA 15581 1228 CAAGCCAI & GOCGAGGG 6841 CCATCGCA GOCTAGCACACAGA ATTGATGA 15581 1229 CAAGCCAI & GOCGAGGG 6841 CCATCGCA GOCTAGCACACAGA ATTGATGA 1220 CAAGCCAI & GOCGAGGG 6842 CCACCCC GOCTAGCACAGA ATTCAGCC 15591 1221 CACCAGGG CAAGGGG 6845 CCACCCC GOCTAGCACAGA ATTCAGGC 15591 1224 CCCAAGCC CCCAGGAGA 6844 TOATCCCG GOCTAGCACAGA ATTCAGGC 15591 1225 C					
1332 ACUGGGAU A CCACUAGG 6828 CCTAGGTG GGCTAGCTACAACGA ATGGCAT 15577 1333 CCACUAGG C CUUUGUA 6830 TACAACAG GGCTAGCTACAACGA CCTAGGTG 15578 1333 CUUCAGGGCU G UUGUAGGGU 6831 ACCTACAA GGCTAGCTACAACGA ACCCTAG 15581 1327 GGGCUGUU G UUGUAGGGU 6831 ACCTACAA GGCTAGCTACAACGA ACCCTAG 15581 1327 GGGCUGUU G UUGUAGGGU 6831 ACCTACAA GGCTAGCTACAACGA ACCCCTAG 15581 1328 UGUUGUAG G UGACCAAU 6832 ATTGGTCA GGCTAGCTACAACGA ACACCCA 15582 1320 UGUUGUAG G UGACCAAU 6833 ATTGGTCA GGCTAGCTACAACGA CTACAACA 15582 1320 UGUUGUAG G UGACCAAU 6834 TATAATTGG GGCTAGCTACAACGA CACCTACA 15582 1316 GGUGACCA UUCAUCAU 6835 ATTGATGA GGCTAGCTACAACGA CACCTACA 15582 1312 ACCAAUUCA 2636 TATGATGA GGCTAGCTACAACGA GATGATAT 15585 1309 AAUUCAUCA UCAUAUCAC 6837 GGATATGA GGCTAGCTACAACGA GATGATAT 15586 1309 AAUUCAUCA UCAUAUCAC 6839 TTGGGATAG GGCTAGCTACAACGA GATGATAT 15586 1304 AUCAUCAU UCCCAASC 6839 GTGTGGG GGCTAGCTACAACGA GATGATGAT 15588 1297 UAUCCACA 6839 GTGTGGG GGCTAGCTACAACGA ATGATGAT 15589 1292 CAAGCCAU GCCABGC 6840 TGGCATGG GGCTAGCTACACACGA ATGATGAT 15589 1292 CAAGCCAU GCCABGC 6841 CCATCGCA GGCTAGCTACACACGA ATGATGAT 15589 1292 CAAGCCAU GCCABGC 6842 GGCCATGG GGCTAGCTACACACGA ATGATGAT 15591 1292 CAAGCCAU GCCABGC 6842 GGCCATGG GGCTAGCTACACACGA ATGATGAT 15591 1294 CCCAAGCC UGCCABGC 6842 GGCCATGG GGCTAGCTACACACGA ATGATGAT 15591 1294 GCCAAGCC UGCCABGC 6842 GCCACTG GGCTAGCTACACACGA CGCATGGC 15592 1295 GCCAAGCC AUGCCACG 6844 GTATCAGG GGCTAGCTACACACGA CCATTGGC 15592 1296 GCCAGGG AUGCCCUGA 6844 GTATCAGG GGCTAGCTACACACGA CCATTGGC 15592 1296 GCCAGGG AUGCCCCAG 6845 GCCACGT GGCTAGCTACACACGA CATGCCCA 15592 1296 GCCAGGT GUGACCCA GGCTAGCTACACACGA CATGCCCA 15592 1296 GCCAGGG AUGCCCCCA 6846 GCCAGGT GGCTAGCTACACACGA CATGCCCCC 15592 1296 GCCAGGT GCCAGGT GGCTAGCTACACACGA CATGCCCCC 15592 1296	1347	GAGCAACU G CGAUACCA	6826	TGGTATCG GGCTAGCTACAACGA AGTTGCTC	15575
1333 GCARIACC A CUIAGGGU 6829 AGCCCTAG GGCTAGCTACANCGA GGTATCCC 15579 1336 CUACUAGG G CUGUUGUA 6831 TACARACAG GGCTAGCTACANCGA CCTAGTGG 15579 1337 CUACUAGG G CUGUUGUA 6831 ACCTACAA GGCTAGCTACANCGA AGCCCTAG 15581 1327 GGGCUGUU G UNGGUGAC 6832 GTCACCTA GGCTAGCTACACACA AGCCCC 15581 1323 UGUUGUAG G UACCCAAU 6834 TATGGTCA GGCTAGCTACACACA ACCGCCC 15581 1326 GGGACCA A UUCAUCAU 6834 TATGGTCA GGCTAGCTACACACA ACGGCCC 15581 1326 GGGACCA A UUCAUCAU 6834 TATGGTCA GGCTAGCTACACACA ACGGCCA 15582 1327 ACCAAUUCA 6834 TATGGTCA GGCTAGCTACACACA ACGGCCA 15582 1328 ACCAAUUCA CUCAUCAU 6835 ATGGTAG GGCTAGCTACACACA 15583 1329 ANUCAUC UCAUCAU 6835 ATGGTAG GGCTAGCTACACACA GATGATT 15585 1336 GUCAUCAU UUCAUCAU 6835 TATGGTAG GGCTAGCTACACACA GATGATT 15585 1336 UCAUCAUC UCAUCAUC 6837 GGATATGA GGCTAGCTACACACA GATGATT 15585 1336 UCAUCAUC UUCAUCAU 6837 GGATATGA GGCTAGCTACACACA GATGATT 15585 1336 UCAUCAUC UUCACAAU 6839 GTTGGGA GGCTAGCTACACACA GATGATTA 15587 1336 UCAUCAUC UUCACAAU 6839 GTTGGGA GGCTAGCTACACACA ATGATGAT 15581 1344 AUCAUCAU UUCACAAU 6839 GGTTAGCTACACACA GATGATGAT 15581 1359 UCAUCAUC UUCACAAU 6839 GGTTAGCTACACACA GATGATGAT 15581 1259 UCAUCAUC UUCACAAU 6840 TOGCATGG GGCTAGCTACACACA GGCTTAGCT 15591 1259 GCCAUGACA UGCGUUGA 6841 CCATGCGA GGCTAGCTACACACA ATGGTTG 15591 1289 GCCAUGAC UGCGUUGA 6841 TACGGCA GGCTAGCTACACACA ATGGTTG 15591 1281 AUGACCA UUCACAC 6844 GTATCAGG GGCTAGCTACACACA ATGGTCG 15592 1286 UGCGAUA UUCACACAC 6844 GTATCAGG GGCTAGCTACACACA ATGGTCC 15592 1277 CCUGAUA C GUGACGGA 6845 GCACCTA GGCTAGCTACACACA ATGGTCC 15592 1278 UGAUCACU UUCACAC 6845 GCACCTA GGCTAGCTACACACA ATGGTC 15592 1279 GGCCUGAU C GUGACGA 6841 TATCAGG GGCTAGCTACACACA ATGGTC 15591 1270 CACAUUACA GUCACACA 6851 TATCAGG GGCTAGCTACACAC	1344	CAACUGCG A UACCACUA	6827	TAGTGGTA GGCTAGCTACAACGA CGCAGTTG	15576
1333 CCACURAG G CUGUIGUA 6830 TACAACAG GGCTAGCTACACGA CCTATOTG 15578 1327 GGGCUGUU G UUGUAGGU 6831 ACCTACAA GGCTAGCTACACGA ACCCCTAG 15581 1328 CUGUGUUG G UUGUGUGU 6832 GTCACCTA GGCTAGCTACAACGA ACAGCCCTAG 15581 1320 UGUUGUGG G UGACCAAU 6833 ATTGGTCA GGCTAGCTACAACGA ACAGCCCTAG 15582 1320 UGUUGUGG G CACAUUCA 6834 TACAACAG GGCTAGCTACAACGA CTACAACA 15582 1320 UGUAGGUG A CCAUUCA 6835 ATTGGTCA GGCTAGCTACACAGCA CACCTACCA 15583 13116 GGUGACCA A UUCAUCAU 6835 ATTGGTCA GGCTAGCTACACAG GANTTGGC 15584 1312 ACCANUUCA U CAUUCAUA 6836 TATGATGA GGCTAGCTACACAG GANTTGGC 15585 1309 AAUUCAUC A UCAUCAUA 6836 TATGATGA GGCTAGCTACACAG GANTTGGC 15585 1304 AUGCACUA U UCCCAAGC 6839 TTGGGATA GGCTAGCTACACAG ATGATAA 15587 1304 AUGCACUA G CCAUGCGA 6849 TTGGGATA GGCTAGCTACACAG ATGATGAT 15588 1294 CCCAAGCC A UGCGAUGG 6841 CTGCATGCA GGCTAGCTACACAG ATGATGAT 15589 1292 CAAGCCAU G CGAUGGG 6841 CTGCATGCA GGCTAGCTACACAGA GGCTTGGG 15591 1288 GCCAUGCG A UGGCCUGA 6844 TTGGGATA GGCTAGCTACACAGA GGCTTGGG 15592 1289 GCCAUGCG A UGGCCUGA 6844 TTGAGCA GGCTAGCTACACAGA CGCTTGGC 15591 1289 GCCAUGCG A UGGCCUGA 6844 GTATCAGG GGCTAGCTACACAGA CTGGCCT 15591 1281 AUGGCCUGA AUGGUGGC 6845 GCCACTG GGCTAGCTACACAGA CTGGCCT 15591 1281 AUGGCCUGA AUGGUGGC 6845 GCCACTG GGCTAGCTACACAGA CTGGCCT 15591 1281 AUGGCCUGA AUGGUGGC 6845 GCCACTG GGCTAGCTACACAGA CTGGCCT 15591 1282 CAAGCCAU G UGGCCGG 6845 GCCACTG GGCTAGCTACACAGA CTGGCCT 15591 1283 GAGCUGAU A UGCUGGCG 6845 GCCACTG GGCTAGCTACACAGA CTGCCCT 15591 1294 CAUUCACAG G UGGCCGGG 6846 GCCACTG GGCTAGCTACACAGA CTGCCCT 15591 1295 UGGCCGGG A UGGCCGGG 6846 TTGCCCG GGCTAGCTACACAGA CTGCCTC 15591 1296 AUGGCCG A UGGCCGGG 6846 TTGCCCG GGCTAGCTACACAGA CTGCTCC 15592 1296 CAUUCACA G UCCAGAC 6849 TTCCTCG GGCTAGCTACACAGA CTGCTCC 15592 1297 CCUGALA	1342	ACUGCGAU A CCACUAGG	6828	CCTAGTGG GGCTAGCTACAACGA ATCGCAGT	15577
13310	1339	GCGAUACC A CUAGGGCU	6829	AGCCCTAG GGCTAGCTACAACGA GGTATCGC	15578
1327	1333	CCACUAGG G CUGUUGUA	6830	TACAACAG GGCTAGCTACAACGA CCTAGTGG	15579
1323 UGUUGUG G UGACCANU 6833 ATTGGTCA GGCTAGCTACANCCA CTACANCA 15582 1320 UGUAGGUG A CCANUUCA 6834 TGAATTIG GGCTAGCTACANGGA CACCTACA 15583 1321 ACCANUUC A UCAUCAU 6835 ATTGATTIG GGCTAGCTACANGGA CACCTACC 15584 1322 ACCANUUC A UCAUCAU 6835 ATTGATGA GGCTAGCTACANGGA CACCTACC 15584 1322 ACCANUC A UCAUCAUC 6837 ATTGATGA GGCTAGCTACANGGA GATGATGT 15586 1309 AAUUCAUC A UCAUCACC 6837 GGATATGA GGCTAGCTACANGGA GATGATGA 15587 1306 UCAUCAUC A UAUCCCAN 6838 TTGGGATA GGCTAGCTACANGGA GATGATGA 15587 1304 AUGAUGUA A UCCCANAC 6839 GCTTGGGA GGCTAGCTACANGGA GATGATGA 15587 1304 AUGAUGUA A UCCCANAC 6843 GCTTGGGA GGCTAGCTACANGGA ATGATGAT 15588 1297 UAUCCCANAC GCAUGGGA 6840 TCGCATGG GGCTAGCTACANGGA TTGGGATA 15589 1292 CCANGCCAU GCAUGGGC 6842 GCCACCTGA GGCTAGCTACANGGA TGGGATA 15589 1293 GCCAUGGCA UGGCCUGA 6843 TCAGGCCA GGCTAGCTACANGGA CGCATGGC 15592 1286 AUGCCAUG GUAGGCCG 6844 GTATCAGG GGCTAGCTACANGGA CACGCATT 15594 1281 AUGCCAUG GUAGGCCG 6845 GCCACCTGA GGCTAGCTACANGGA CACGCAT 15594 1297 GGCCUGAU A CSUGGCCG 6846 CGGCCACTG GGCTAGCTACANGGA CACGCAT 15594 1277 CCUGAUAC GUAGCCGG 6847 CGCACCTGA GGCTAGCTACANGGA CACGCAT 15594 1279 GGCCUGAU A CSUGGCCG 6848 TATCCCCG GGCTAGCTACANGGA CACCGCAT 15597 1266 UGGCCGGG CAUGACCC CGGCCA GCCACCTGA GGCTAGCTACANGGA CACCGCAC 15597 1274 GAUACCUG GCCGGGAU 6848 TATCCCCG GGCTAGCTACANGGA CACCGATCC 15597 1286 UGGCCGGG AUGAUCGA 6849 TCGATGCTACANGGA CACCGAC 15597 1287 DAGAUCGA GCCAGGCA 6850 TTGATGTCA GCCAGGAC GCCAGCCA 15597 1289 UAGAUCGA GCCAGGCA 6851 TTGATGTCA GCCTAGCTACANGGA CACCGACC 15599 1299 UAGAUCGA GCAGGGAG 6851 TTGATGTCA GCCTAGCTACANGGA CACCGACC 15599 1291 UAGAUCGA GCAGGAGA 6851 TTGATGTCA GCCTAGCTACANGGA CACCGACC 15599 1292 UAGAUCGA GUACAUCG 6855 CACGGCCCA GCCTAGCTACANGGA CACCGA	1330	CUAGGGCU G UUGUAGGU	6831	ACCTACAA GGCTAGCTACAACGA AGCCCTAG	15580
1316	1327	GGGCUGUU G UAGGUGAC	6832	GTCACCTA GGCTAGCTACAACGA AACAGCCC	15581
1316 GGUGACCA A UUCAUCAU 6835 ATGATGAN GGCTAGCTACAACGA TGGTCACC 15584 1312 ACCABUUC A UCAUCAUC 6836 TATGATGAN GGCTAGCTACAACGA GATGATT 15586 1309 AAUUCAUCA UCAUCAUC 6837 GGTTAGCTACAACGA GATGATT 15586 1306 UCAUCAUC A UAUCCCCAA 6838 TTGGGATA GGCTAGCTACAACGA GATGATTAT 15586 1306 UCAUCAUC A UAUCCCCAA 6838 TTGGGATGA GGCTAGCTACAACGA GATGATGAT 15587 1304 AUCAUCAU A UCCCCAAGC 6839 GCTTGGGA GGCTAGCTACAACGA ATGATGAT 15587 1297 UAUCCCAA CCAUGCGA 6840 TTGCATGA GGCTAGCTACAACGA ATGATGAT 15588 1297 UAUCCCAA CCAUGCGA 6841 TTGCATGA GGCTAGCTACAACGA CGCTTAGGTA 15589 1292 CCAAGCCAU GCAUGGGC 6842 GCCATCGA GGCTAGCTACAACGA CGCTTAGGT 15591 1289 GCCAUGGG A UGGCCUGA 6843 TCAGGCCA GGCTAGCTACAACGA CGCCATGGC 15592 1281 AUGCGUGA UAGCUGGC 6844 GTATCAGG GCCTAGCTACAACGA CGCCATGGC 15592 1291 AUGCGUGA UAGCUGGC 6845 GCCACGTA GGCTAGCTACAACGA CAGCCAT 15594 1277 CCUGAUAC UAGCUGGC 6846 CGCCAGGA GGCTAGCTACAACGA CAGCCAT 15594 1277 CCUGAUAC UAGCUGGC 6846 CGGCCAGG GGCTAGCTACAACGA CAGCCAT 15594 1277 CCUGAUAC UAGCUGGG 6847 CCCCGGCCA GGCTAGCTACAACGA CAGCCAT 15595 1274 GAUACGUG UAGCUGGG 6848 TATCCCGG GGCTAGCTACAACGA CAGCCATC 15595 1276 GAUACGUG UAGCUGGG 6849 TCGATCTA GGCTAGCTACAACGA CACCCATT 15597 1286 UGGCCGGG AUGAUCGA 6850 TTGCTCGA GGCTAGCTACAACGA CACCCATC 15597 1286 UGGCCGGG AUGAUCGA 6850 TTGCTCGA GGCTAGCTACAACGA CACCCTC 15599 1259 UAGAUCGA CAAUUACA 6851 TTGCTCGA GGCTAGCTACAACGA CACCCCCA 15599 1259 UAGAUCGA CAAUUACA 6851 TTGCTCGA GGCTAGCTACAACGA CACCCCCC 15599 1259 UAGAUCGA CAUUACAC 6852 GACTGTAA GGCTAGCTACAACGA CACGACTC 15602 1256 CCGGAUAG A UACGACGA 6850 TTGCTCGA GGCTAGCTACAACGA CACGACTC 15602 1257 AUGCCGGG CAAUUACA 6851 TTGATATG GGCTAGCTACAACGA TCTCCTCA 15602 1258 ACCGGCCCC GACGACGA 6854 GTCCCCCCC GCCCACCA ACGGCCCC 6854	1323	UGUUGUAG G UGACCAAU	6833	ATTGGTCA GGCTAGCTACAACGA CTACAACA	15582
1312 ACCARUUC A UCAUCAIDA 66336 TATGATGA GGCTAGCTACAACGA GARTTGGT 15585 1309 AAUUCAUC A UCAUDACC 6837 GGATAGGA GGCTAGCTACAACGA GATGAATT 15586 1306 UCAUCAUCA UAUUCCCAA 6838 TIGGGATA GGCTAGCTACAACGA GATGAATAT 15587 1304 AUCAUCAU A UCACCAAGC 6839 GCTTGGGA GGCTAGCTACAACGA GATGATGAT 15587 1304 AUCACUCAI A UCACCAAGC 6840 TCGCATGG GGCTAGCTACAACGA ATGATGAT 15589 1295 UAUCCCAA G CCAUGGGA 6840 TCGCATGG GGCTAGCTACAACGA ATGAGGAT 15589 1292 CAAGCCAU G CGAUGGCC 6842 GCCATGG GGCTAGCTACAACGA ATGGCTT 15591 1292 CAAGCCAU G CGAUGGCC 6842 GCCATGG GGCTAGCTACAACGA ATGGCTT 15592 1293 CACAUGCGA 6843 TCAGGCCA GGCTAGCTACAACGA ATGGCTT 15592 1296 AUGGGUGG 6844 GTATCAGG GGCTAGCTACAACGA CACATGGC 15592 1297 GGCCUSAU A UAGGUGGC 6845 GCCACGTA GGCTAGCTACAACGA CACATGCAT 15593 1279 GGCCUSAU A CGUGGCCG 6846 CGGCCACG GGCTAGCTACAACGA CACATGCAT 15593 1277 CCUGAUAC G UGGCCGGA 6845 GCCACGTA GGCTAGCTACAACGA CACATGCAT 15594 1277 CCUGAUAC G UGGCCGGG 6847 CCCGGCCA GGCTAGCTACAACGA CACATGCAT 15597 1278 AUGGCUG A UAGAUCGA 6848 TCGATCTA GGCTAGCTACAACGA CACATGCAT 15598 1279 CAAUCACA G CCGGGAUA 6849 TCGATCTA GGCTAGCTACAACGA CACATGTAC 15599 1268 UGGCCGGG A UAGAUCGA 6850 TTGATCTG GGCTAGCTACAACGA CACATGTAC 15599 1268 UGGCCGGG A UAGAUCGA 6850 TTGATCTG GGCTAGCTACAACGA CACATGTAC 15599 1269 CAAUUACA G CAAUUACA 6851 TTGATCTG GGCTAGCTACAACGA CACATGTAC 15599 1260 CAGUGCUC G CAAUUACA 6851 TTGATCTG GGCTAGCTACAACGA CACATGTAC 15600 1250 CAAUUACA G UCCUGUC 6854 GTACAGGA GGCTAGCTACAACGA CATGCACC 15599 1260 CAAUUACA G UCCUGUC 6855 CACAGACTG GGCTAGCTACAACGA CACATGTAC 15600 1260 CAAUUACA G UCCUGUC 6855 CACAGACTG GGCTAGCTACAACGA CACAGATT 15601 1261 CAAUUACA G UCCUGUAC 6855 CACAGACTG GGCTAGCTACAACGA CACAGAT 15601 1261 CAAUUACA G UCCUGUC 6855 CACAGACTG GGCTAGCTACAACGA CACAGAT 15602 1261 CAAUUACA G UCCUCUC 6855 CACAGACTG GGCTAGCTAC	1320	UGUAGGUG A CCAAUUCA	6834	TGAATTGG GGCTAGCTACAACGA CACCTACA	15583
1306	1316	GGUGACCA A UUCAUCAU	6835	ATGATGAA GGCTAGCTACAACGA TGGTCACC	15584
1306	1312	ACCAAUUC A UCAUCAUA	6836	TATGATGA GGCTAGCTACAACGA GAATTGGT	15585
1306		AAUUCAUC A UCAUAUCC	6837		
1394			 		
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1279 GGCCUGAU A CGUGGCCG 6846 CGGCCACG GGCTAGCTACAACGA ATCAGGCC 15595 1277 CCUGAUAC G UGGCCGGG 6847 CCCGGCCA GGCTAGCTACAACGA GTATCAGG 15596 1274 GAUACGUG G CCGGGAUA 6848 TATCCCGG GGCTAGCTACAACGA CACGTATC 15597 1268 UGGCCGGG A UAGAUCCA 6849 TCGATCTA GGCTAGCTACAACGA CCCGGCCA 15598 1264 CGGCAUAG A UAGACCAA 6850 TTGCTCGA GGCTAGCTACAACGA CCCGGCCA 15598 1259 UAGAUCGA G CAAUUACA 6851 TGTAATTG GGCTAGCTACAACGA CTATCCCG 15599 1259 UAGAUCGA G UACACGUC 6852 GACTGTAA GGCTAGCTACAACGA TGCTCCAT 15600 1253 GAGCAAUU A CAGUCCUG 6853 CAGGACTG GGCTAGCTACAACGA TGCTCCAT 15601 1254 ACAGUCCU G UACUGUCC 6855 AGACAGTA GGCTAGCTACAACGA TGCTCCAT 15601 1245 ACAGUCCU G UACUGUCU 6855 AGACAGTA GGCTAGCTACAACGA TGTAATTG 15603 1246 ACAGUCCU G UACUGUCU 6855 AGACAGTA GGCTAGCTACAACGA AGGACTT 15604 1247 AGUCCUGUA C CGCCCCA 6856 TGAGACAG GGCTAGCTACAACGA AGGACTT 15605 1248 AGUCGUCU A UACCGGCG 6856 TGAGACAG GGCTAGCTACAACGA ACGACTT 15605 1249 CCUGUACU G UCUCAUAC 6857 GTATGAGA GGCTAGCTACAACGA ACGACTT 15606 1235 ACUGUCU A UACCGGCG 6858 CGCCGGTA GGCTAGCTACAACGA ACGACAGT 15606 1223 UGUCUCAU A CCGGCGG 6858 CCCCGGTA GGCTAGCTACAACGA ACGACAGT 15607 1224 CCGCCAG G CGAGAGGG 6860 TCGCCTCG GGCTAGCTACAACGA ATGACAGT 15607 1224 CCGCCAG G CGAGAAGG 6861 CCTTCTCG GGCTAGCTACAACGA CTGCCCGG 15610 1216 GCGAGAAG G UGAGAAGG 6861 CCTTCTCG GGCTAGCTACAACGA CTGCCCGG 15610 1216 GCGAGAAG G UGAGAAGG 6861 CCTTCTCG GGCTAGCTACAACGA TCACCTT 15612 1210 GCUGAGA A CAGCUGA 6864 TCTCTCAG GGCTAGCTACAACGA TCACCTT 15612 1201 GCUGAGA A CAGCUGA 6864 TCTCTCAG GGCTAGCTACAACGA TCACCTT 15612 1201 GCUGAGA A CAGCUGA 6864 TCTCTCAG GGCTAGCTACAACGA CTTCTCAG 15611 1212 GAAGGUGA A CAGCAGA 6864 TCTCTCAG GGCTAGCTACAACGA CTTCCTCG 15611 1214 GAAGAUCA G CUGAGAGA 6865 TCTCCTCG GGCTAGCTACAACGA CTTCCTCG 15611 1216 GCCCACAG A UACCCAC 6869 GTGCGGATGGCTACAACGA CTTCC					
1277 CCUGAUAC G UGGCCGG 6847 CCCGGCCA GGCTAGCTACAACGA GTATCAGG 15596 1274 GAUACGUG G CCGGGAUA 6848 TATCCCGG GGCTAGCTACAACGA CACGTATC 15597 1268 UGGCCGGG A UAGAUCGA 6849 TCGATCTA GGCTAGCTACAACGA CACGTATC 15598 1264 CGGGAUAG A UCGAGCA 6850 TTGCTCGA GGCTAGCTACAACGA CTATCCCG 15599 1259 UAGAUCGA CABUUACA 6851 TGTAATTG GGCTAGCTACAACGA TCGATCTA 15600 1255 AUCGAGCA A UUACAGUC 6852 GACTAGTACAACGA TGCTCCAAT 15601 1253 GAGCAPUU A CAGUCCU 6853 CAGGACTG GGCTAGCTACAACGA ACTGATCT 15601 1245 ACAGUCCU G UCCUUCA 6855 GTACAGGA GGCTAGCTACAACGA ACTGATCT 15603 1244 ACUGUCUC A UACCGGCG 6855 TGAGACAG GGCTAGCTACAACGA AGACTT 15605 1235 ACUGUCUC A UACCGGCG 6858 CGCCGGTA GGCTAGCTACAACGA AGTACAGCA 15605 1233 UGUCUCAU A CCGGCGA 6859 CTCGCCGG GGCTAGCTACAACGA ATTACACGA 15608 1224 CCGGCAGG G CGAGGAGA 6850 CTCGCCGG GGCTAGCTACAACGA AT					
1274 GAUACGUG G CCGGGAUA 6848 TATCCCGG GGCTAGCTACAACGA CACGTATC 15597 1268 UGGCCGG A UAGAUCGA 6849 TCGATCTA GGCTAGCTACAACGA CACGCCA 15598 1264 CGGGAUAG A UCGAGCAA 6850 TGCTCGA GGCTAGCTACAACGA CTATCCCG 15599 1259 UAGAUCGA G CAAUUACA 6851 TGTAATTG GGCTAGCTACAACGA TGCTGGAT 15600 1256 AUCGAGCA A UUACAGUC 6852 GACTGTAA GGCTAGCTACAACGA TGCTGGAT 15601 1253 GAGCAUU A CAGUCCUG 6853 CAGGACTG GGCTAGCTACAACGA TGTAATTG 15602 1250 CAAUUACA G UCCUGUAC 6854 GTACAGGA GGCTAGCTACAACGA AATTCCT 15603 1245 ACAGUCCU G UCUCUCA 6855 AGACAGTA GGCTAGCTACAACGA AGGACT 15605 1240 CCUGUACU G UCUCUAUAC 6857 GTATGAGA GGCTAGCTACAACGA AGTACAGG 15605 1233 ACUGUCUA A UACCGGCG 6858 CGCCGGTA GGCTAGCTACAACGA AGTACAGA 15607 1224 UCAUACUC A UCCGGCGA 6850 TCCCCCG GGCTAGCTACAACGA AGTACAGA 15608 1224 UCAUACUC A UCCGGAGA 6861 CCTCTCCG GGCTAGCTACAACGA CTCCCCCGG </td <td></td> <td></td> <td> </td> <td></td> <td></td>			 		
1268					
1264 CGGGAUAG A UCGAGCAA 6850 TTGCTCGA GGCTAGCTACAACGA CTATCCCG 15599 1259 UAGAUCGA G CAAUUACA 6851 TGTAATTG GGCTAGCTACAACGA TCGATCTA 15600 1256 AUCGAGCA A UUACAGUC 6852 GACTGTAA GGCTAGCTACAACGA TCGATCTA 15600 1253 GAGCAAUU A CAGUCCUG 6853 CAGGACTG GGCTAGCTACAACGA AATTGCTC 15602 1250 CAAUUACA G UCCUGUAC 6854 GTACAGGA GGCTAGCTACAACGA AATTGCTC 15602 1245 ACAGUCCU G UACUGUCU 6855 AGACAGTA GGCTAGCTACAACGA AGGACTT 15604 1240 CCUGUACU G UCUCAUAC 6856 TGAGGAG GGCTAGCTACAACGA AGGACTT 15605 1235 ACUGUCUC A UACCGGCG 6858 CGCCGGTA GGCTAGCTACAACGA AGGACAGT 15605 1235 ACUGUCUC A UACCGGCG 6857 GTATGGATA GGCTACAACGA AGGACAGT 15607 1233 UGUUCAU A CCGGCGAG 6859 CTCGCCGG GGCTAGCTACAACGA AGGACAGT 15607 1224 CCCGCGAG G CGAGAAGG 6861 CCTCTCTCG GGCTAGCTACAACGA CTCCCCGG 15610 1224 CCCGGCAGA G UAGACAGC 6862 CCTTCTCG GGCTAGCTACAACGA CTCCCCCC					+
1259 UAGAUCGA G CAAUUACA 6851 TGTAATTG GGCTAGCTACAACGA TCGATCTA 15600 1256 AUGAGACA A UUACAGUC 6852 GACTGTAA GGCTAGCTACAACGA TGCTCGAT 15601 1253 GAGCADUU A CAGUCCUG 6853 CAGGACTG GGCTAGCTACAACGA ATTGCTC 15602 1250 CABUUACA G UCCUGUAC 6854 GTACAGGA GGCTAGCTACAACGA AATTGCTC 15603 1245 ACAGUCCU G UACUGUCU 6855 AGACAGTA GGCTAGCTACAACGA AGGACCT 15604 1243 AGUCCUGU A CUGUAUAC 6856 TGAGACAG GGCTAGCTACAACGA AGGACCT 15605 1240 CCUGUACU G UCUCAUAC 6857 GTATGAGA GGCTAGCTACAACGA AGGACAGT 15605 1235 ACUGUCUA A CCGGCGA 6858 CCCGCGGTA GGCTAGCTACAACGA AGGACAGT 15607 1233 UGUCUCAU A CCGGCGA 6859 CTCGCCGG GGCTAGCTACAACGA CGGATAGTA 15608 1229 UCAUACCG G CGAGAGGA 6860 TCGCCTC GGCTAGCTACAACGA CTGCCCGG 15609 1224 CCGGCAGA G UGAACAGC 6861 CCTTCTCG GGCTAGCTACAACGA CTCCCCC 15611 1212 GAAGGUGA A CAGCUGA 6863 CTCAGCTG GGCTAGCTACAACGA CTCCCCC </td <td></td> <td></td> <td> - -</td> <td></td> <td>15598</td>			- -		15598
1256					15599
1253			6851		15600
1250 CAAUUACA G UCCUGUAC 6854 GTACAGGA GGCTAGCTACAACGA TGTAATTG 15603 1245 ACAGUCCU G UACUGUCU 6855 AGACAGTA GGCTACAACGA AGGACTGT 15604 1243 AGUCCUGU A CUGUCUCA 6856 TGAGACAG GGCTACCAACGA ACAGGACT 15605 1240 CCUGUACU G UCUCAUAC 6857 GTATGAGA GGCTACAACGA AGTACAGG 15606 1235 ACUGUCUC A UACCGGCG 6858 CGCCGGTA GGCTACAACGA AGGACAGT 15608 1229 UCAUACCG G CGAGGCGA 6859 CTCGCCGG GGCTAGCTACAACGA ATGAGACA 15608 1229 UCAUACCG G CGAGACAG 6860 TCGCCTCG GGCTAGCTACAACGA CTCCCCGG 15610 1216 GCGAGAAG G6861 CCTTCTCG GGCTAGCTACAACGA CTCCCCGG 15611 1216 GCAGAAAG 6862 GCTGTTCA GGCTAGCTACAACGA CTCCCCC 15611 1212 QAAGGUAA C AGGUCAG 6862 GCTGTTCCA GGCTAGCTACAACGA CTCCCC 15612 1209 GGUGAACA G CUGAGAGA 6864 TCTCCTCG GGCTAGCTACAACGA CTCTCAGC 15613 1201 GCUGAGAG A CAGAUCC 6865 CTTCCTCG GGCTAGCTACAACGA CTCTCAGC 15614 </td <td>1256</td> <td></td> <td>6852</td> <td>GACTGTAA GGCTAGCTACAACGA TGCTCGAT</td> <td>15601</td>	1256		6852	GACTGTAA GGCTAGCTACAACGA TGCTCGAT	15601
1245 ACAGUCCU G UACUGUCU 6855 AGACAGTA GGCTAGCTACAACGA AGGACTGT 15604 1243 AGUCCUGU A CUGUCUCA 6856 TGAGACAG GGCTAGCTACAACGA ACAGGACT 15605 1240 CCUGUACU G UCUCAUAC 6857 GTATGAGA GGCTAGCTACAACGA AGTACAGG 15606 1235 ACUGUCUC A UACCGGCG 6858 CGCCGGTA GGCTAGCTACAACGA AGTACAGC 15607 1233 UGUCUCAU A CCGGCGAG 6859 CTCGCCGG GGCTAGCTACAACGA ATGAGACA 15608 1229 UCAUACCG G CGAGGAGA 6860 TCGCCTCG GGCTAGCTACAACGA CTCGCCGG 15609 1224 CCGGCGAG G CGAGAAGG 6861 CCTTCTCG GGCTAGCTACAACGA CTCCCCGG 15610 1216 GCGAGAAG GUGACAAGC 6862 GCTGTTCA GGCTAGCTACAACGA CTCCCCG 15611 1212 GAAGGUGA A CAGCUGAG 6863 CTCCAGCTG GGCTAGCTACAACGA CTCTCCCC 15612 1209 GGUGACA A CAGAGAAGA 6864 TCTCTCAG GGCTAGCTACAACGA CTCCCCC 15612 1192 CGAGGAAG A CCGACAGA 6865 CTTCCTCG GGCTAGCTACAACGA CTCTCCCC 15615 1184 ACAGAUCC G CAGAGAUC 6867	1253	GAGCAAUU A CAGUCCUG	6853	CAGGACTG GGCTAGCTACAACGA AATTGCTC	15602
1243 AGUCCUGU A CUGUCUCA 6856 TGAGACAG GGCTAGCTACAACGA ACAGGACT 15605 1240 CCUGUACU G UCUCAUAC 6857 GTATGAGA GGCTAGCTACAACGA AGTACAGG 15606 1235 ACUGUCUC A UACCGGCG 6858 CGCCGGTA GGCTAGCTACAACGA AGTACAGG 15607 1233 UGUCUCAU A CCGGCGAG 6859 CTCGCCGG GGCTAGCTACAACGA ATGAGCA 15608 1229 UCAUACCG G CGAGGCGA 6860 TCGCCTCG GGCTAGCTACAACGA CGTATGA 15609 1224 CCGGCAGG G CGAGAAGG 6861 CCTTCTCG GGCTAGCTACAACGA CTCCCGG 15610 1216 GCGAGAAG 6862 GCTGTTCA GGCTAGCTACAACGA CTCCCCG 15611 1212 GAAGGUGA 6863 CTCAGCTG GGCTAGCTACAACGA CTCCCTCC 15612 1209 GGUGAACA G CUGAGAGA 6864 TCTCTCCG GGCTAGCTACAACGA TCTCCCC 15612 1201 GCUGAGAGA A CAGAUCCG 6866 CGGATAGCTACAACGA CTCCCCC 15612 1182 GAAGACAG A UCCCCAGA 6867 TCTGCGG GGCTAGCTACAACGA CTCCTCCG 15615 1184 ACAGAUCC 6866 CGGATAGCTACAACGA CTCCTCC 15616	1250	CAAUUACA G UCCUGUAC	6854	GTACAGGA GGCTAGCTACAACGA TGTAATTG	15603
1240 CCUGUACU G UCUCAUAC 6857 GTATGAGA GGCTAGCTACAACGA AGTACAGC 15606 1235 ACUGUCUC A UACCGGCG 6858 CGCCGGTA GGCTAGCTACAACGA GAGACAGT 15607 1233 UGUCUCAU A CCGGCGAG 6859 CTCGCCGG GGCTAGCTACAACGA ATGAGACA 15608 1229 UCAUACCG G CGAGGAGA 6860 TCGCCTCG GGCTAGCTACAACGA CGGTATGA 15609 1224 CCGGCGAG G CGAGAAGG 6861 CCTTCTCG GGCTAGCTACAACGA CTCCCCG 15610 1216 GCGAGAAG G UGAACAGC 6862 GCTGTTCA GGCTAGCTACAACGA CTCCCCC 15611 1212 GAAGGUGA A CAGCUGAG 6863 CTCAGCTG GGCTAGCTACAACGA CTCCCCC 15612 1209 GUGAACA G CUGAGAGA 6864 TCTCTCAG GGCTAGCTACAACGA TCTCCACC 15613 1201 GCUGAGAG A CGAGGAAG 6865 CTTCCTCG GGCTAGCTACAACGA CTCTCAGC 15613 1192 CGAGGAAG A CAGAUCCG 6866 CGGATCTG GGCTAGCTACAACGA CTCTCCG 15615 1188 GAAGACCG A UCCCCAC 6868 GATCTCTG GGCTAGCTACAACGA CTCTCCGG 15616 1184 ACGAGAGA UCCCCCAC 6869 GTGGGGA GCCTAGCTACAACGA CTCTGCGG <td>1245</td> <td>ACAGUCCU G UACUGUCU</td> <td>6855</td> <td>AGACAGTA GGCTAGCTACAACGA AGGACTGT</td> <td>15604</td>	1245	ACAGUCCU G UACUGUCU	6855	AGACAGTA GGCTAGCTACAACGA AGGACTGT	15604
1235 ACUGUCUC A UACCGGCG 6858 CGCCGGTA GGCTAGCTACAACGA GAGACAGT 15607 1233 UGUCUCAU A CCGGCGAG 6859 CTCGCCGG GGCTAGCTACAACGA ATGAGACA 15608 1229 UCAUACCG G CGAGGCGA 6860 TCGCCTCG GGCTAGCTACAACGA CGGTATGA 15609 1224 CCGGCGAG G CGAGAAGG 6861 CCTTCTCG GGCTAGCTACAACGA CTCCGCCGG 15610 1216 GCGAGAAG G UGAACAGC 6862 GCTGTTCA GGCTAGCTACAACGA CTCTCCGC 15611 1212 GAAGGUGA A CAGCUGAG 6863 CTCAGCTG GGCTAGCTACAACGA CTCTCCCC 15612 1209 GGUGAGAC A CAGCUGAG 6864 TCTCTCAG GGCTAGCTACAACGA TCTCCACC 15612 1201 GCUGAGAG A CGAGGAAG 6864 TCTCTCCG GGCTAGCTACAACGA CTCTCAGC 15614 1192 CGAGGAAG A CAGAUCCG 6866 CGGATCTG GGCTAGCTACAACGA CTCTCAGC 15615 1188 GAAGAUC G CAGAGAUC 6867 TCTGCGGA GGCTAGCTACAACGA CTCTCTCG 15616 1184 ACAGAUCC G CAGAGAUC 6868 GATCTTCT GGCTAGCTACAACGA CTCTCGGG 15617 1171 GAUCCCCC A CGUACAUA 6870 TATGTACG GGCTAGCTACAACGA CTC	1243	AGUCCUGU A CUGUCUCA	6856	TGAGACAG GGCTAGCTACAACGA ACAGGACT	15605
1233 UGUCUCAU A CCGGCGAG 6859 CTCGCCGG GGCTAGCTACAACGA ATGAGACA 15608 1229 UCAUACCG G CGAGGCGA 6860 TCGCCTCG GGCTAGCTACAACGA CGGTATGA 15609 1224 CCGGCGAG G CGAGAAGG 6861 CCTTCTCG GGCTAGCTACAACGA CTCGCCGG 15610 1216 GCGAGAAG G UGAACAGC 6862 GCTGTTCA GGCTAGCTACAACGA CTCTCCGC 15611 1212 GAAGGUGA A CAGCUGAG 6863 CTCAGCTG GGCTAGCTACAACGA TCACCTTC 15612 1209 GGUGAACA G CUGAGAGA 6864 TCTCTCAG GGCTAGCTACAACGA TCTCCAGC 15613 1201 GCUGAGAG A CGAGAAG 6865 CTTCCTCG GGCTAGCTACAACGA CTTCCTAGC 15614 1192 CGAGGAAG A UCCGCAGA 6866 CGGATCTG GGCTAGCTACAACGA CTTCCTCG 15615 1184 ACAGAUCC G CAGACAUC 6868 GATCTCTG GGCTAGCTACAACGA CTCTCCGG 15616 1171 GAUCCCC A CGUACAUA 6870 TATGTACG GGCTAGCTACAACGA CTCTCCGG 15618 1171 GAUCCCCC A CGUACAUA 6870 TATGTACG GGCTAGCTACAACGA GTGGGGA 15629 1169 UCCCCCAC G UACAUAGC 6871 GCTATGTA GGCTACAACGA GTGGGGG </td <td>1240</td> <td>CCUGUACU G UCUCAUAC</td> <td>6857</td> <td>GTATGAGA GGCTAGCTACAACGA AGTACAGG</td> <td>15606</td>	1240	CCUGUACU G UCUCAUAC	6857	GTATGAGA GGCTAGCTACAACGA AGTACAGG	15606
1229 UCAUACCG G CGAGGCGA 6860 TCGCCTCG GGCTAGCTACAACGA CGGTATGA 15609 1224 CCGGCGAG G CGAGAAGG 6861 CCTTCTCG GGCTAGCTACAACGA CTCGCCGG 15610 1216 GCGAGAAG G UGAACAGC 6862 GCTGTTCA GGCTAGCTACAACGA CTCTCCGC 15611 1212 GAAGGUGA A CAGCUGAG 6863 CTCAGCTG GGCTAGCTACAACGA TCACCTTC 15612 1209 GGUGAACA G CUGAGAGA 6864 TCTCTCAG GGCTAGCTACAACGA TGTTCACC 15613 1201 GCUGAGAG A CGAGAGAG 6865 CTTCCTCG GGCTAGCTACAACGA CTCTCAGC 15614 1192 CGAGGAAG A CCGCAGA 6866 CGGATCTG GGCTAGCTACAACGA CTCCTCG 15615 1188 GAAGACCA A UCCCCACA 6866 GATCTCTG GGCTAGCTACAACGA CTCTCCG 15616 1184 ACAGAUCC G CAGAGAUC 6868 GATCTCTG GGCTAGCTACAACGA CTCTGCGG 15618 1171 GAUCCCCA 6869 GTGGGGA GCCTAGCTACAACGA CTCTGCGG 15618 1171 GAUCCCCA C GUACAUAG 6871 GCTATGTA GGCTAGCTACAACGA GTGGGGA 15620 1169 UCCCCCAC G UACAUAGC 6871 GCTAGCTACAACGA ACGTGGGG 156	1235	ACUGUCUC A UACCGGCG	6858	CGCCGGTA GGCTAGCTACAACGA GAGACAGT	15607
1224 CCGGCGAG G CGAGAAGG 6861 CCTTCTCG GGCTAGCTACAACGA CTCGCCGG 15610 1216 GCGAGAAG G UGAACAGC 6862 GCTGTTCA GGCTAGCTACAACGA CTCTCTCGC 15611 1212 GAAGGUGA A CAGCUGAG 6863 CTCAGCTG GGCTAGCTACAACGA TCACCTTC 15612 1209 GGUGAACA G CUGAGAGA 6864 TCTCTCAG GGCTAGCTACAACGA TGTTCACC 15613 1201 GCUGAGAG A CGAGGAAG 6865 CTTCCTCG GGCTAGCTACAACGA CTCCTCG 15614 1192 CGAGGAAG A CGAGAUCCG 6866 CGGATCTG GGCTAGCTACAACGA CTTCCTCG 15615 1188 GAAGACCG A UCCGCAGA 6867 TCTGCGGA GGCTAGCTACAACGA CTGTCTTC 15616 1184 ACAGAUCC G CAGAGAUC 6868 GATCTCTG GGCTAGCTACAACGA CTGTCTTC 15616 1171 GAUCCCCAC 6869 GTGGGGA GCCTAGCTACAACGA CTGTCGGG 15618 1171 GAUCCCCAC G UACAUAGC 6871 GCTATGTA GGCTAGCTACAACGA GTGGGGA 15620 1167 CCCCACGU A CAUAGCA 6871 GCTATGTA GGCTAGCTACAACGA GTGGGG 15621 1167 CCCCACGU A UAGCAGAG 6872 CTGCTAG GGCTAGCTACAACGA TATGTACG	1233	UGUCUCAU A CCGGCGAG	6859	CTCGCCGG GGCTAGCTACAACGA ATGAGACA	15608
1216 GCGAGAAG G UGAACAGC 6862 GCTGTTCA GGCTAGCTACAACGA CTTCTCGC 15611 1212 GAAGGUGA A CAGCUGAG 6863 CTCAGCTG GGCTAGCTACAACGA TCACCTTC 15612 1209 GGUGAACA G CUGAGAGA 6864 TCTCTCAG GGCTAGCTACAACGA TGTTCACC 15613 1201 GCUGAGAG A CGAGGAAG 6865 CTTCCTCG GGCTAGCTACAACGA CTCTCAGC 15614 1192 CGAGGAAG A CAGAUCCG 6866 CGGATCTG GGCTAGCTACAACGA CTGTCTTC 15615 1188 GAAGACAG A UCCGCAGA 6867 TCTGCGGA GGCTAGCTACAACGA CTGTCTTC 15616 1184 ACAGAUCC G CAGAGAUC 6868 GATCTCTG GGCTAGCTACAACGA CTGTCTGT 15617 1178 CCGCAGAG A UCCCCCAC 6869 GTGGGGGA GGCTAGCTACAACGA CTCTGCGG 15618 1171 GAUCCCCC A CGUACAUA 6870 TATGTACG GGCTAGCTACAACGA GTGGGGGA 15619 1169 UCCCCCAC G UACAUAGC 6871 GCTATGTA GGCTAGCTACAACGA GTGGGGG 15620 1167 CCCCACGU A CAUAGCAG 6872 CTGCTATG GGCTAGCTACAACGA TATGTACG 15621 1165 CCACGUAC A UAGCAGAG 6873 CTCTGCTA GGCTAGCTACAACGA TATG	1229	UCAUACCG G CGAGGCGA	6860	TCGCCTCG GGCTAGCTACAACGA CGGTATGA	15609
1212 GAAGGUGA A CAGCUGAG 6863 CTCAGCTG GGCTAGCTACAACGA TCACCTTC 15612 1209 GGUGAACA G CUGAGAGA 6864 TCTCTCAG GGCTAGCTACAACGA TGTTCACC 15613 1201 GCUGAGAG A CGAGGAAG 6865 CTTCCTCG GGCTAGCTACAACGA CTCTCAGC 15614 1192 CGAGGAAG A CAGAUCCG 6866 CGGATCTG GGCTAGCTACAACGA CTTCCTCG 15615 1188 GAAGACAG A UCCGCAGA 6867 TCTGCGGA GGCTAGCTACAACGA CTGTCTTC 15616 1184 ACAGAUCC G CAGAGAUC 6868 GATCTCTG GGCTAGCTACAACGA GTGTCTT 15617 1178 CCGCAGAG A UCCCCCAC 6869 GTGGGGGA GGCTAGCTACAACGA CTCTGCGG 15618 1171 GAUCCCCC A CGUACAUA 6870 TATGTACG GGCTAGCTACAACGA GTGGGGGA 15619 1169 UCCCCCAC G UACAUAGC 6871 GCTATGTA GGCTAGCTACAACGA ACGTGGGG 15620 1167 CCCCACGU A CAUAGCA 6872 CTGCTATG GGCTAGCTACAACGA ACGTGGG 15621 1165 CCACGUAC A UAGCAGAG 6873 CTCTGCTA GGCTAGCAACGA TATGTACG 15622 1162 CGUACAUA G CAGAAAGC 6874 CTGCTTG GGCTAGCTACAACGA TCTGCTAT </td <td>1224</td> <td>CCGGCGAG G CGAGAAGG</td> <td>6861</td> <td>CCTTCTCG GGCTAGCTACAACGA CTCGCCGG</td> <td>15610</td>	1224	CCGGCGAG G CGAGAAGG	6861	CCTTCTCG GGCTAGCTACAACGA CTCGCCGG	15610
1209 GGUGAACA G CUGAGAGA 6864 TCTCTCAG GGCTAGCTACAACGA TGTTCACC 15613 1201 GCUGAGAG A CGAGGAAG 6865 CTTCCTCG GGCTAGCTACAACGA CTCTCAGC 15614 1192 CGAGGAAG A CAGAUCCG 6866 CGGATCTG GGCTAGCTACAACGA CTCCTCG 15615 1188 GAAGACAG A UCCGCAGA 6867 TCTGCGGA GGCTAGCTACAACGA CTCTCTC 15616 1184 ACAGAUCC G CAGAGAUC 6868 GATCTCTG GGCTAGCTACAACGA GGATCTGT 15617 1178 CCGCAGAG A UCCCCCAC 6869 GTGGGGA GGCTAGCTACAACGA CTCTGCGG 15618 1171 GAUCCCCC A CGUACAUA 6870 TATGTACG GGCTAGCTACAACGA GGGGGATC 15619 1169 UCCCCCAC G UACAUAGC 6871 GCTATGTA GGCTAGCTACAACGA GTGGGG 15620 1167 CCCCACGUA C AUAGCAG 6872 CTGCTATG GGCTAGCTACAACGA GTACGTGG 15621 1165 CCACGUAC A UAGCAGAG 6873 CTCTGCTA GGCTAGCTACAACGA GTACGTGG 15622 1162 CGUACAUA G CAGAGACA 6874 CTGCTCTG GGCTAGCTACAACGA TCTGCTAT 15624 1150 AGCAGAAA G CAGCACC 6875 GCTTTCTG GGCTAGCTACAACGA TCTGCTT </td <td>1216</td> <td>GCGAGAAG G UGAACAGC</td> <td>6862</td> <td>GCTGTTCA GGCTAGCTACAACGA CTTCTCGC</td> <td>15611</td>	1216	GCGAGAAG G UGAACAGC	6862	GCTGTTCA GGCTAGCTACAACGA CTTCTCGC	15611
1201 GCUGAGAG A CGAGGAAG 6865 CTTCCTCG GGCTAGCTACAACGA CTCTCAGC 15614 1192 CGAGGAAG A CAGAUCCG 6866 CGGATCTG GGCTAGCTACAACGA CTTCCTCG 15615 1188 GAAGACAG A UCCGCAGA 6867 TCTGCGGA GGCTAGCTACAACGA CTTCCTCC 15616 1184 ACAGAUCC G CAGAGAUC 6868 GATCTCTG GGCTAGCTACAACGA CTGTCTTC 15616 1178 CCGCAGAG A UCCCCCAC 6869 GTGGGGGA GGCTAGCTACAACGA CTCTGCGG 15618 1171 GAUCCCCC A CGUACAUA 6870 TATGTACG GGCTAGCTACAACGA GGGGGATC 15619 1169 UCCCCCAC G UACAUAGC 6871 GCTATGTA GGCTAGCTACAACGA GTGGGGGA 15620 1167 CCCCACGU A CAUAGCAG 6872 CTGCTATG GGCTAGCTACAACGA ACGTGGGG 15621 1165 CCACGUAC A UAGCAGAG 6873 CTCTGCTA GGCTAGCTACAACGA GTACGTGG 15622 1162 CGUACAUA G CAGAGACG 6874 CTGCTCTG GGCTAGCTACAACGA TATGTACG 15623 1157 AUAGCAGA G CAGAAAGC 6875 GCTTTCTG GGCTAGCTACAACGA TCTGCTAT 15624 1150 AGCAGAAA G CAGCCGCC 6876 GGCGGCTG GGCTAGCTACAACGA TCTCCTAT 15624 1147 AGAAAGCA G CCGCCCCA 6877 TGGGGCGG GGCTAGCTACAACGA TCCTTCT 15625 1147 AGAAAGCA G CCCCCACG 6878 CGTTGGGG GGCTAGCTACAACGA TCCTTCT 15626 1144 AAGCAGCC G CCCCAACG 6878 CGTTGGGG GGCTAGCTACAACGA TGCTTCT 15627 1138 CCGCCCCA A CGAGCAAA 6879 TTTGCTCG GGCTAGCTACAACGA TGGGGCGC 15628 1134 CCCCAACGA G CAAAUCGA 6880 TCGATTTG GGCTAGCTACAACGA TCGTTGGG 15629	1212	GAAGGUGA A CAGCUGAG	6863	CTCAGCTG GGCTAGCTACAACGA TCACCTTC	15612
1192 CGAGGAAG A CAGAUCCG 6866 CGGATCTG GGCTAGCTACAACGA CTTCCTCG 15615 1188 GAAGACAG A UCCGCAGA 6867 TCTGCGGA GGCTAGCTACAACGA CTGTCTTC 15616 1184 ACAGAUCC G CAGAGAUC 6868 GATCTCTG GGCTAGCTACAACGA GGATCTGT 15617 1178 CCGCAGAG A UCCCCCAC 6869 GTGGGGGA GGCTAGCTACAACGA CTCTGCGG 15618 1171 GAUCCCCC A CGUACAUA 6870 TATGTACG GGCTAGCTACAACGA GGGGGATC 15619 1169 UCCCCCAC G UACAUAGC 6871 GCTATGTA GGCTAGCTACAACGA GTGGGGGA 15620 1167 CCCCACGU A CAUAGCAG 6872 CTGCTATG GGCTAGCTACAACGA ACGTGGGG 15621 1165 CCACGUAC A UAGCAGAG 6873 CTCTGCTA GGCTAGCTACAACGA GTACGTGG 15622 1162 CGUACAUA G CAGAGCAG 6874 CTGCTCTG GGCTAGCTACAACGA TATGTACG 15623 1157 AUAGCAGA G CAGAAAGC 6875 GCTTTCTG GGCTAGCTACAACGA TCTGCTAT 15624 1150 AGCAGAAA G CAGCCGCC 6876 GGCGGCTG GGCTAGCTACAACGA TTTCTGCT 15625 1147 AGAAAGCA G CCGCCCCA 6877 TGGGGCGG GGCTAGCTACAACGA TGCTTCT 15626 1144 AAGCAGCC G CCCCAACG 6878 CGTTGGGG GGCTAGCTACAACGA TGCTTCT 15627 1138 CCGCCCCA A CGAGCAAA 6879 TTTGCTCG GGCTAGCTACAACGA TGGGGCGG 15628 1134 CCCCAACGA G CAAAUCGA 6880 TCGATTTG GGCTAGCTACAACGA TCGTTGGG 15629	1209	GGUGAACA G CUGAGAGA	6864	TCTCTCAG GGCTAGCTACAACGA TGTTCACC	15613
1192 CGAGGAAG A CAGAUCCG 6866 CGGATCTG GGCTAGCTACAACGA CTTCCTCG 15615 1188 GAAGACAG A UCCGCAGA 6867 TCTGCGGA GGCTAGCTACAACGA CTGTCTTC 15616 1184 ACAGAUCC G CAGAGAUC 6868 GATCTCTG GGCTAGCTACAACGA GGATCTGT 15617 1178 CCGCAGAG A UCCCCCAC 6869 GTGGGGGA GGCTAGCTACAACGA CTCTGCGG 15618 1171 GAUCCCCC A CGUACAUA 6870 TATGTACG GGCTAGCTACAACGA GGGGGATC 15619 1169 UCCCCCAC G UACAUAGC 6871 GCTATGTA GGCTAGCTACAACGA GTGGGGGA 15620 1167 CCCCACGU A CAUAGCAG 6872 CTGCTATG GGCTAGCTACAACGA ACGTGGGG 15621 1165 CCACGUAC A UAGCAGAG 6873 CTCTGCTA GGCTAGCTACAACGA GTACGTGG 15622 1162 CGUACAUA G CAGAGCAG 6874 CTGCTCTG GGCTAGCTACAACGA TATGTACG 15623 1157 AUAGCAGA G CAGAAAGC 6875 GCTTTCTG GGCTAGCTACAACGA TCTGCTAT 15624 1150 AGCAGAAA G CAGCCGCC 6876 GGCGGCTG GGCTAGCTACAACGA TTTCTGCT 15625 1147 AGAAAGCA G CCGCCCCA 6877 TGGGGCGG GGCTAGCTACAACGA TGCTTCT 15626 1144 AAGCAGCC G CCCCAACG 6878 CGTTGGGG GGCTAGCTACAACGA TGCTTCT 15627 1138 CCGCCCCA A CGAGCAAA 6879 TTTGCTCG GGCTAGCTACAACGA TGGGGCGG 15628 1134 CCCCAACGA G CAAAUCGA 6880 TCGATTTG GGCTAGCTACAACGA TCGTTGGG 15629	1201	GCUGAGAG A CGAGGAAG	6865	CTTCCTCG GGCTAGCTACAACGA CTCTCAGC	15614
1188 GAAGACAG A UCCGCAGA 6867 TCTGCGGA GGCTAGCTACAACGA CTGTCTTC 15616 1184 ACAGAUCC G CAGAGAUC 6868 GATCTCTG GGCTAGCTACAACGA GGATCTGT 15617 1178 CCGCAGAG A UCCCCCAC 6869 GTGGGGGA GGCTAGCTACAACGA CTCTGCGG 15618 1171 GAUCCCCC A CGUACAUA 6870 TATGTACG GGCTAGCTACAACGA GGGGGATC 15619 1169 UCCCCCAC G UACAUAGC 6871 GCTATGTA GGCTAGCTACAACGA GTGGGGA 15620 1167 CCCCACGU A CAUAGCAG 6872 CTGCTATG GGCTAGCTACAACGA ACGTGGGG 15621 1165 CCACGUAC A UAGCAGAG 6873 CTCTGCTA GGCTAGCTACAACGA GTACGTGG 15622 1162 CGUACAUA G CAGAGCAG 6874 CTGCTCTG GGCTAGCTACAACGA TATGTACG 15623 1157 AUAGCAGA G CAGAAAGC 6875 GCTTTCTG GGCTAGCTACAACGA TCTGCTAT 15624 1150 AGCAGAAA G CAGCCGCC 6876 GGCGGCTG GGCTAGCTACAACGA TTTCTGCT 15625 1147 AGAAAGCA G CCGCCCCA 6877 TGGGGCGG GGCTAGCTACAACGA TGCTTTCT 15626 1144 AAGCAGCC G CCCCAACG 6878 CGTTGGGG GGCTAGCTACAACGA TGCTTCT 15627 1138 CCGCCCCA A CGAGCAAA 6879 TTTGCTCG GGCTAGCTACAACGA TGGGGCGG 15628 1134 CCCAACGA G CAAAUCGA 6880 TCGATTTG GGCTAGCTACAACGA TCGTTGGG 15629	1192	CGAGGAAG A CAGAUCCG	6866		
1184 ACAGAUCC G CAGAGAUC 6868 GATCTCTG GGCTAGCTACAACGA GGATCTGT 15617 1178 CCGCAGAG A UCCCCCAC 6869 GTGGGGGA GGCTAGCTACAACGA CTCTGCGG 15618 1171 GAUCCCCC A CGUACAUA 6870 TATGTACG GGCTAGCTACAACGA GGGGGATC 15619 1169 UCCCCAC G UACAUAGC 6871 GCTATGTA GGCTAGCTACAACGA GTGGGGGA 15620 1167 CCCCACGU A CAUAGCAG 6872 CTGCTATG GGCTAGCTACAACGA ACGTGGGG 15621 1165 CCACGUAC A UAGCAGAG 6873 CTCTGCTA GGCTAGCTACAACGA GTACGTGG 15622 1162 CGUACAUA G CAGAGCAG 6874 CTGCTCTG GGCTAGCTACAACGA TATGTACG 15623 1157 AUAGCAGA G CAGAAAGC 6875 GCTTTCTG GGCTAGCTACAACGA TCTGCTAT 15624 1150 AGCAGAAA G CAGCCGCC 6876 GGCGGCTG GGCTAGCTACAACGA TTTCTGCT 15625 1147 AGAAAGCA G CCGCCCCA 6877 TGGGGCGG GGCTAGCTACAACGA TGCTTTCT 15626 1144 AAGCAGCC G CCCCAACG 6878 CGTTGGGG GGCTAGCTACAACGA TGCTTTCT 15627 1138 CCGCCCCA A CGAGCAAA 6879 TTTGCTCG GGCTAGCTACAACGA TGGGGCGG 15628 1134 CCCAACGA G CAAAUCGA 6880 TCGATTTG GGCTAGCTACAACGA TCGTTGGG 15629	1188	GAAGACAG A UCCGCAGA	6867		
1178 CCGCAGAG A UCCCCCAC 6869 GTGGGGGA GGCTAGCTACAACGA CTCTGCGG 15618 1171 GAUCCCCC A CGUACAUA 6870 TATGTACG GGCTAGCTACAACGA GGGGGATC 15619 1169 UCCCCCAC G UACAUAGC 6871 GCTATGTA GGCTAGCTACAACGA GTGGGGGA 15620 1167 CCCCACGU A CAUAGCAG 6872 CTGCTATG GGCTAGCTACAACGA ACGTGGGG 15621 1165 CCACGUAC A UAGCAGAG 6873 CTCTGCTA GGCTAGCTACAACGA GTACGTGG 15622 1162 CGUACAUA G CAGAGCAG 6874 CTGCTCTG GGCTAGCTACAACGA TATGTACG 15623 1157 AUAGCAGA G CAGAAAGC 6875 GCTTTCTG GGCTAGCTACAACGA TCTGCTAT 15624 1150 AGCAGAAA G CAGCCGCC 6876 GGCGGCTG GGCTAGCTACAACGA TTCTGCT 15625 1147 AGAAAGCA G CCGCCCCA 6877 TGGGGCGG GGCTAGCTACAACGA TGCTTTCT 15626 1144 AAGCAGC G CCCCCAACG 6878 CGTTGGGG GGCTAGCTACAACGA TGCTTCT 15627 1138 CCGCCCCA A CGAGCAAA 6879 TTTGCTCG GGCTAGCTACAACGA TGGGGCGG 15628 1134 CCCCAACGA G CAAAUCGA 6880 TCGATTTG GGCTAGCTACAACGA TCGTTGGG					
1171 GAUCCCCC A CGUACAUA 6870 TATGTACG GGCTAGCTACAACGA GGGGGATC 15619 1169 UCCCCCAC G UACAUAGC 6871 GCTATGTA GGCTAGCTACAACGA GTGGGGGA 15620 1167 CCCCACGU A CAUAGCAG 6872 CTGCTATG GGCTAGCTACAACGA ACGTGGGG 15621 1165 CCACGUAC A UAGCAGAG 6873 CTCTGCTA GGCTAGCTACAACGA GTACGTGG 15622 1162 CGUACAUA G CAGAGCAG 6874 CTGCTCTG GGCTAGCTACAACGA TATGTACG 15623 1157 AUAGCAGA G CAGAAAGC 6875 GCTTTCTG GGCTAGCTACAACGA TCTGCTAT 15624 1150 AGCAGAAA G CAGCCGCC 6876 GGCGGCTG GGCTAGCTACAACGA TTTCTGCT 15625 1147 AGAAAGCA G CCGCCCCA 6877 TGGGGCGG GGCTAGCTACAACGA TGCTTTCT 15626 1144 AAGCAGCC G CCCCAACG 6878 CGTTGGGG GGCTAGCTACAACGA GGCTGCTT 15627 1138 CCGCCCCA A CGAGCAAA 6879 TTTGCTCG GGCTAGCTACAACGA TGGGGCGG 15628 1134 CCCCAACGA G CAAAUCGA 6880 TCGATTTG GGCTAGCTACAACGA TCGTTGGG					
1169 UCCCCCAC G UACAUAGC 6871 GCTATGTA GGCTAGCTACAACGA GTGGGGGA 15620 1167 CCCCACGU A CAUAGCAG 6872 CTGCTATG GGCTAGCTACAACGA ACGTGGGG 15621 1165 CCACGUAC A UAGCAGAG 6873 CTCTGCTA GGCTAGCTACAACGA GTACGTGG 15622 1162 CGUACAUA G CAGAGCAG 6874 CTGCTCTG GGCTAGCTACAACGA TATGTACG 15623 1157 AUAGCAGA G CAGAAAGC 6875 GCTTTCTG GGCTAGCTACAACGA TCTGCTAT 15624 1150 AGCAGAAA G CAGCCGCC 6876 GGCGGCTG GGCTAGCTACAACGA TTTCTGCT 15625 1147 AGAAAGCA G CCGCCCCA 6877 TGGGGCGG GGCTAGCTACAACGA TGCTTCT 15626 1144 AAGCAGCC G CCCCAACG 6878 CGTTGGG GGCTAGCTACAACGA GGCTGCTT 15627 1138 CCGCCCCA A CGAGCAAA 6879 TTTGCTCG GGCTAGCTACAACGA TGGGGCGG 15628 1134 CCCCAACGA G CAAAUCGA 6880 TCGATTTG GGCTAGCTACAACGA TCGTTGGG					
1167 CCCCACGU A CAUAGCAG 6872 CTGCTATG GGCTAGCTACAACGA ACGTGGGG 15621 1165 CCACGUAC A UAGCAGAG 6873 CTCTGCTA GGCTAGCTACAACGA GTACGTGG 15622 1162 CGUACAUA G CAGAGCAG 6874 CTGCTCTG GGCTAGCTACAACGA TATGTACG 15623 1157 AUAGCAGA G CAGAAAGC 6875 GCTTTCTG GGCTAGCTACAACGA TCTGCTAT 15624 1150 AGCAGAAA G CAGCCGCC 6876 GGCGGCTG GGCTAGCTACAACGA TTTCTGCT 15625 1147 AGAAAGCA G CCGCCCCA 6877 TGGGGCGG GGCTAGCTACAACGA TGCTTTCT 15626 1144 AAGCAGCC G CCCCAACG 6878 CGTTGGGG GGCTAGCTACAACGA GGCTGCTT 15627 1138 CCGCCCCA A CGAGCAAA 6879 TTTGCTCG GGCTAGCTACAACGA TGGGGCGG 15628 1134 CCCCAACGA G CAAAUCGA 6880 TCGATTTG GGCTAGCTACAACGA TCGTTGGG	-		 		
1165 CCACGUAC A UAGCAGAG 6873 CTCTGCTA GGCTAGCTACAACGA GTACGTGG 15622 1162 CGUACAUA G CAGAGCAG 6874 CTGCTCTG GGCTAGCTACAACGA TATGTACG 15623 1157 AUAGCAGA G CAGAAAGC 6875 GCTTTCTG GGCTAGCTACAACGA TCTGCTAT 15624 1150 AGCAGAAA G CAGCCGCC 6876 GGCGGCTG GGCTAGCTACAACGA TTTCTGCT 15625 1147 AGAAAGCA G CCGCCCCA 6877 TGGGGCGG GGCTAGCTACAACGA TGCTTTCT 15626 1144 AAGCAGCC G CCCCAACG 6878 CGTTGGGG GGCTAGCTACAACGA GGCTGCTT 15627 1138 CCGCCCCA A CGAGCAAA 6879 TTTGCTCG GGCTAGCTACAACGA TGGGGCGG 15628 1134 CCCCAACGA G CAAAUCGA 6880 TCGATTTG GGCTAGCTACAACGA TCGTTGGG			 		
1162 CGUACAUA G CAGAGCAG 6874 CTGCTCTG GGCTAGCTACAACGA TATGTACG 15623 1157 AUAGCAGA G CAGAAAGC 6875 GCTTTCTG GGCTAGCTACAACGA TCTGCTAT 15624 1150 AGCAGAAA G CAGCCGCC 6876 GGCGGCTG GGCTAGCTACAACGA TTTCTGCT 15625 1147 AGAAAGCA G CCGCCCCA 6877 TGGGGCGG GGCTAGCTACAACGA TGCTTTCT 15626 1144 AAGCAGCC G CCCCAACG 6878 CGTTGGGG GGCTAGCTACAACGA GGCTGCTT 15627 1138 CCGCCCCA A CGAGCAAA 6879 TTTGCTCG GGCTAGCTACAACGA TGGGGCGG 15628 1134 CCCCAACGA G CAAAUCGA 6880 TCGATTTG GGCTAGCTACAACGA TCGTTGGG 15629			 		
1157 AUAGCAGA G CAGAAAGC 6875 GCTTTCTG GGCTAGCTACAACGA TCTGCTAT 15624 1150 AGCAGAAA G CAGCCGCC 6876 GGCGGCTG GGCTAGCTACAACGA TTTCTGCT 15625 1147 AGAAAGCA G CCGCCCCA 6877 TGGGGCGG GGCTAGCTACAACGA TGCTTTCT 15626 1144 AAGCAGCC G CCCCAACG 6878 CGTTGGGG GGCTAGCTACAACGA GGCTGCTT 15627 1138 CCGCCCCA A CGAGCAAA 6879 TTTGCTCG GGCTAGCTACAACGA TGGGGCGG 15628 1134 CCCAACGA G CAAAUCGA 6880 TCGATTTG GGCTAGCTACAACGA TCGTTGGG 15629				L	
1150 AGCAGAAA G CAGCCGCC 6876 GGCGGCTG GGCTAGCTACAACGA TTTCTGCT 15625 1147 AGAAAGCA G CCGCCCCA 6877 TGGGGCGG GGCTAGCTACAACGA TGCTTTCT 15626 1144 AAGCAGCC G CCCCAACG 6878 CGTTGGG GGCTAGCTACAACGA GGCTGCTT 15627 1138 CCGCCCCA A CGAGCAAA 6879 TTTGCTCG GGCTAGCTACAACGA TGGGGCGG 15628 1134 CCCAACGA G CAAAUCGA 6880 TCGATTTG GGCTAGCTACAACGA TCGTTGGG 15629					}
1147 AGAAAGCA G CCGCCCCA 6877 TGGGGCGG GGCTAGCTACAACGA TGCTTTCT 15626 1144 AAGCAGCC G CCCCAACG 6878 CGTTGGG GGCTAGCTACAACGA GGCTGCTT 15627 1138 CCGCCCCA A CGAGCAAA 6879 TTTGCTCG GGCTAGCTACAACGA TGGGGCGG 15628 1134 CCCAACGA G CAAAUCGA 6880 TCGATTG GGCTAGCTACAACGA TCGTTGGG 15629					
1144AAGCAGCC G CCCCAACG6878CGTTGGGG GGCTAGCTACAACGA GGCTGCTT156271138CCGCCCCA A CGAGCAAA6879TTTGCTCG GGCTAGCTACAACGA TGGGGCGG156281134CCCAACGA G CAAAUCGA6880TCGATTG GGCTAGCTACAACGA TCGTTGGG15629	<u> </u>		 		
1138 CCGCCCCA A CGAGCAAA 6879 TTTGCTCG GGCTAGCTACAACGA TGGGGCGG 15628 1134 CCCAACGA G CAAAUCGA 6880 TCGATTG GGCTAGCTACAACGA TCGTTGGG 15629					
1134 CCCAACGA G CAAAUCGA 6880 TCGATTTG GGCTAGCTACAACGA TCGTTGGG 15629					
	<u> </u>				
1130 ACGAGCAA A OCGACGOG 6881 CACGTCGA GGCTAGCTACAACGA TTGCTCGT 15630					
	1130	ACGAGCAA A UCGACGUG	P88T	CACGICGA GGCTAGCTACAACGA TTGCTCGT	15630

1406	CONNECTED A CONTRACTOR	5000	COCHEA CO. COCHA COMA CA A COA. COA FIRMINGO	15633
1126	GCAAAUCG A CGUGACGC AAAUCGAC G UGACGCCG	6882 6883	GCGTCACG GGCTAGCTACAACGA CGATTTGC CGGCGTCA GGCTAGCTACAACGA GTCGATTT	15631 15632
1124				
1121	UCGACGUG A CGCCGUAU	6884	ATACGGCG GGCTAGCTACAACGA CACGTCGA	15633
1119	GACGUGAC G CCGUAUCG	6885	CGATACGG GGCTAGCTACAACGA GTCACGTC	15634
1116	GUGACGCC G UAUCGUCG	6886	CGACGATA GGCTAGCTACAACGA GGCGTCAC	15635
1114	GACGCCGU A UCGUCGUA	6887	TACGACGA GGCTAGCTACAACGA ACGGCGTC	15636
1111	GCCGUAUC G UCGUAGUG	6888	CACTACGA GGCTAGCTACAACGA GATACGGC	15637
1108	GUAUCGUC G UAGUGGGG	6889	CCCCACTA GGCTAGCTACAACGA GACGATAC	15638
1105	UCGUCGUA G UGGGGAUG	6890	CATCCCCA GGCTAGCTACAACGA TACGACGA	15639
1099	UAGUGGGG A UGCUGGCA	6891	TGCCAGCA GGCTAGCTACAACGA CCCCACTA	15640
1097	GUGGGGAU G CUGGCAUU	6892	AATGCCAG GGCTAGCTACAACGA ATCCCCAC	15641
1093	GGAUGCUG G CAUUCCUG	6893	CAGGAATG GGCTAGCTACAACGA CAGCATCC	15642
1091	AUGCUGGC A UUCCUGGC	6894	GCCAGGAA GGCTAGCTACAACGA GCCAGCAT	15643
1084	CAUUCCUG G CCGCGAGC	6895	GCTCGCGG GGCTAGCTACAACGA CAGGAATG	15644
1081	UCCUGGCC G CGAGCGUG	6896	CACGCTCG GGCTAGCTACAACGA GGCCAGGA	15645
1077	GGCCGCGA G CGUGGGAG	6897	CTCCCACG GGCTAGCTACAACGA TCGCGGCC	15646
1075	CCGCGAGC G UGGGAGUG	6898	CACTCCCA GGCTAGCTACAACGA GCTCGCGG	15647
1069	GCGUGGGA G UGAGCGCU	6899	AGCGCTCA GGCTAGCTACAACGA TCCCACGC	15648
1065	GGGAGUGA G CGCUACCC	6900	GGGTAGCG GGCTAGCTACAACGA TCACTCCC	15649
1063	GAGUGAGC G CUACCCAG	6901	CTGGGTAG GGCTAGCTACAACGA GCTCACTC	15650
1060	UGAGCGCU A CCCAGCAG	6902	CTGCTGGG GGCTAGCTACAACGA AGCGCTCA	15651
1055	GCUACCCA G CAGCGGGA	6903	TCCCGCTG GGCTAGCTACAACGA TGGGTAGC	15652
1052	ACCCAGCA G CGGGAGGA	6904	TCCTCCCG GGCTAGCTACAACGA TGCTGGGT	15653
1043	CGGGAGGA G UUGUUCUC	6905	GAGAACAA GGCTAGCTACAACGA TCCTCCCG	15654
1040	GAGGAGUU G UUCUCCCG	6906	CGGGAGAA GGCTAGCTACAACGA AACTCCTC	15655
1030	UCUCCCGA A CGCAGGGC	6907	GCCCTGCG GGCTAGCTACAACGA TCGGGAGA	15656
1028	UCCCGAAC G CAGGGCAC	6908	GTGCCCTG GGCTAGCTACAACGA GTTCGGGA	15657
1023	AACGCAGG G CACGCACC	6909	GGTGCGTG GGCTAGCTACAACGA CCTGCGTT	15658
1021	CGCAGGGC A CGCACCCC	6910	GGGGTGCG GGCTAGCTACAACGA GCCCTGCG	15659
1019	CAGGGCAC G CACCCCGG	6911	CCGGGGTG GGCTAGCTACAACGA GTGCCCTG	15660
1017	GGGCACGC A CCCCGGGG	6912	CCCCGGGG GGCTAGCTACAACGA GCGTGCCC	15661
1009	ACCCCGGG G UGUGCAUG	6913	CATGCACA GGCTAGCTACAACGA CCCGGGGT	15662
1007	CCCGGGGU G UGCAUGAU	6914	ATCATGCA GGCTAGCTACAACGA ACCCCGGG	15663
1005	CGGGGUGU G CAUGAUCA	6915	TGATCATG GGCTAGCTACAACGA ACACCCCG	15664
1003	GGGUGUGC A UGAUCAUG	6916	CATGATCA GGCTAGCTACAACGA GCACACCC	15665
1000	UGUGCAUG A UCAUGUCC	6917	GGACATGA GGCTAGCTACAACGA CATGCACA	15666
997	GCAUGAUC A UGUCCUCU	6918	AGAGGACA GGCTAGCTACAACGA GATCATGC	15667
995	AUGAUCAU G UCCUCUGC	6919	GCAGAGGA GGCTAGCTACAACGA ATGATCAT	15668
988	UGUCCUCU G CCUCAUAC	6920	GTATGAGG GGCTAGCTACAACGA AGAGGACA	15669
983	UCUGCCUC A UACACAAU	6921	ATTGTGTA GGCTAGCTACAACGA GAGGCAGA	15670
981	UGCCUCAU A CACAAUGC	6922	GCATTGTG GGCTAGCTACAACGA ATGAGGCA	15671
979	CCUCAUAC A CAAUGCUU	6923	AAGCATTG GGCTAGCTACAACGA GTATGAGG	15672
976	CAUACACA A UGCUUGAG	6924	CTCAAGCA GGCTAGCTACAACGA TGTGTATG	15673
974	UACACAAU G CUUGAGUU	6925	AACTCAAG GGCTAGCTACAACGA ATTGTGTA	15674
968	AUGCUUGA G UUGGAGCA	6926	TGCTCCAA GGCTAGCTACAACGA TCAAGCAT	15675
962	GAGUUGGA G CAAUCGUU	6927	AACGATTG GGCTAGCTACAACGA TCCAACTC	15676
959	UUGGAGCA A UCGUUCGU	6928	ACGAACGA GGCTAGCTACAACGA TGCTCCAA	15677
956	GAGCAAUC G UUCGUGAC	6929	GTCACGAA GGCTAGCTACAACGA GATTGCTC	15678
952	AAUCGUUC G UGACAUGG	6930	CCATGTCA GGCTAGCTACAACGA GAACGATT	15679
949	CGUUCGUG A CAUGGUAC	6931	GTACCATG GGCTAGCTACAACGA CACGAACG	15680
947	UUCGUGAC A UGGUACAG	6932	CTGTACCA GGCTAGCTACAACGA GTCACGAA	15681
944	GUGACAUG G UACAGCCC	6933	GGGCTGTA GGCTAGCTACAACGA CATGTCAC	15682
942	GACAUGGU A CAGCCCGG	6934	CCGGGCTG GGCTAGCTACAACGA ACCATGTC	15683
939	AUGGUACA G CCCGGACG	6935	CGTCCGGG GGCTAGCTACAACGA TGTACCAT	15684
933	CAGCCCGG A CGCGUUGC	6936	GCAACGCG GGCTAGCTACAACGA CCGGGCTG	15685
931	GCCGGAC G CGUUGCAC	6937	GTGCAACG GGCTAGCTACAACGA GTCCGGGC	15686
			TOTAL STATES TAKEN GICCOGGC	

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929	CCGGACGC G UUGCACAC	6938	GTGTGCAA GGCTAGCTACAACGA GCGTCCGG	15687
926	GACGCGUU G CACACCUC	6939	GAGGTGTG GGCTAGCTACAACGA AACGCGTC	15688
924	CGCGUUGC A CACCUCAU	6940	ATGAGGTG GGCTAGCTACAACGA GCAACGCG	15689
922	CGUUGCAC A CCUCAUAA	6941	TTATGAGG GGCTAGCTACAACGA GTGCAACG	15690
917	CACACCUC A UAAGCGGA	6942	TCCGCTTA GGCTAGCTACAACGA GAGGTGTG	15691
913	CCUCAUAA G CGGAGGCU	6943	AGCCTCCG GGCTAGCTACAACGA TTATGAGG	15692
907	AAGCGGAG G CUGGGAUG	6944	CATCCCAG GGCTAGCTACAACGA CTCCGCTT	15693
901	AGGCUGGG A UGGUCAGA	6945	TCTGACCA GGCTAGCTACAACGA CCCAGCCT	15694
898	CUGGGAUG G UCAGACAG	6946	CTGTCTGA GGCTAGCTACAACGA CATCCCAG	15695
893	AUGGUCAG A CAGGGCAG	6947	CTGCCCTG GGCTAGCTACAACGA CTGACCAT	15696
888	CAGACAGG G CAGCAGAG	6948	CTCTGCTG GGCTAGCTACAACGA CCTGTCTG	15697
885	ACAGGGCA G CAGAGCCA	6949	TGGCTCTG GGCTAGCTACAACGA TGCCCTGT	15698
880	GCAGCAGA G CCAAGAGG	6950	CCTCTTGG GGCTAGCTACAACGA TCTGCTGC	15699
868	AGAGGAAG A UAGAGAAA	6951	TTTCTCTA GGCTAGCTACAACGA CTTCCTCT	15700
857	GAGAAAGA G CAACCGGG	6952	CCCGGTTG GGCTAGCTACAACGA TCTTTCTC	15701
854	AAAGAGCA A CCGGGCAG	6953	CTGCCCGG GGCTAGCTACAACGA TGCTCTTT	15702
849	GCAACCGG G CAGAUUCC	6954	GGAATCTG GGCTAGCTACAACGA CCGGTTGC	15703
845	CCGGGCAG A UUCCCUGU	6955	ACAGGGAA GGCTAGCTACAACGA CTGCCCGG	15704
838	GAUUCCCU G UUGCAUAG	6956	CTATGCAA GGCTAGCTACAACGA AGGGAATC	15705
835	UCCCUGUU G CAUAGUUC	6957	GAACTATG GGCTAGCTACAACGA AACAGGGA	15706
833	CCUGUUGC A UAGUUCAC	6958	GTGAACTA GGCTAGCTACAACGA GCAACAGG	15707
830	GUUGCAUA G UUCACGCC	6959	GGCGTGAA GGCTAGCTACAACGA TATGCAAC	15708
826	CAUAGUUC A CGCCGUCU	6960	AGACGCG GGCTAGCTACAACGA GAACTATG	15709
824	UAGUUCAC G CCGUCUUC	6961	GAAGACGG GGCTAGCTACAACGA GTGAACTA	15710
821	UUCACGCC G UCUUCCAG	6962	CTGGAAGA GGCTAGCTACAACGA GGCGTGAA	
811	CUUCCAGA A CCCGGACG	6963	CGTCCGGG GGCTAGCTACAACGA TCTGGAAG	15711
805	GAACCCGG A CGCCAUGC	6964	GCATGGCG GGCTAGCTACAACGA CCGGGTTC	15712
803	ACCCGGAC G CCAUGCGC	6965		15713
800	CGGACGC A UGCGCCAG		GCGCATGG GGCTAGCTACAACGA GTCCGGGT	15714
798	GACGCCAU G CGCCAGGG	6966	CTGGCGCA GGCTAGCTACAACGA GGCGTCCG	15715
796		6967	CCCTGGCG GGCTAGCTACAACGA ATGGCGTC	15716
790	CGCCAUGC G CCAGGGCC GCGCCAGG G CCCUGGCA	6968	GGCCCTGG GGCTAGCTACAACGA GCATGGCG	15717
784		6969	TGCCAGGG GGCTAGCTACAACGA CCTGGCGC	15718
781	GGGCCCUG G CAGUGCCU	6970	AGGCACTG GGCTAGCTACAACGA CAGGGCCC	15719
779	CCCUGGCA G UGCCUCCC	6971	GGGAGGCA GGCTAGCTACAACGA TGCCAGGG	15720
	CUGGCAGU G CCUCCCAA	6972	TTGGGAGG GGCTAGCTACAACGA ACTGCCAG	15721
766	CCAAGGGG G CGCCGACG	6973	CGTCGGCG GGCTAGCTACAACGA CCCCTTGG	15722
764	AAGGGGC G CCGACGAG	6974	CTCGTCGG GGCTAGCTACAACGA GCCCCCTT	15723
760	GGGCGCCG A CGAGCGGA	6975	TCCGCTCG GGCTAGCTACAACGA CGGCGCCC	15724
756	GCCGACGA G CGGAAUGU	6976	ACATTCCG GGCTAGCTACAACGA TCGTCGGC	15725
751	CGAGCGGA A UGUACCCC	6977	GGGGTACA GGCTAGCTACAACGA TCCGCTCG	15726
749	AGCGGAAU G UACCCCAU	6978	ATGGGGTA GGCTAGCTACAACGA ATTCCGCT	15727
747	CGGAAUGU A CCCCAUGA	6979	TCATGGGG GGCTAGCTACAACGA ACATTCCG	15728
742	UGUACCCC A UGAGGUCG	6980	CGACCTCA GGCTAGCTACAACGA GGGGTACA	15729
737	CCCAUGAG G UCGGCGAA	6981	TTCGCCGA GGCTAGCTACAACGA CTCATGGG	15730
733	UGAGGUCG G CGAAGCCG	6982	CGGCTTCG GGCTAGCTACAACGA CGACCTCA	15731
728	UCGCCAA G CCGCAUGU	6983	ACATGCGG GGCTAGCTACAACGA TTCGCCGA	15732
725	GCGAAGCC G CAUGUGAG	6984	CTCACATG GGCTAGCTACAACGA GGCTTCGC	15733
723	GAAGCCGC A UGUGAGGG	6985	CCCTCACA GGCTAGCTACAACGA GCGGCTTC	15734
721	AGCCGCAU G UGAGGGUA	6986	TACCCTCA GGCTAGCTACAACGA ATGCGGCT	15735
715	AUGUGAGG G UAUCGAUG	6987	CATCGATA GGCTAGCTACAACGA CCTCACAT	15736
713	GUGAGGGU A UCGAUGAC	6988	GTCATCGA GGCTAGCTACAACGA ACCCTCAC	15737
709	GGGUAUCG A UGACCUUA	6989	TAAGGTCA GGCTAGCTACAACGA CGATACCC	15738
706	UAUCGAUG A CCUUACCC	6990	GGGTAAGG GGCTAGCTACAACGA CATCGATA	15739
701	AUGACCUU A CCCAAGUU	6991	AACTTGGG GGCTAGCTACAACGA AAGGTCAT	15740
695	UUACCCAA G UUACGCGA	6992	TCGCGTAA GGCTAGCTACAACGA TTGGGTAA	15741
692	CCCAAGUU A CGCGACCU	6993	AGGTCGCG GGCTAGCTACAACGA AACTTGGG	15742

GUIDACIGIC A CULIAGOCC 6995 GGICTAGIC GGICTAGCTACAACIA CGICCIGGG 15745	690	CAAGUUAC G CGACCUAC	6994	GTAGGTCG GGCTAGCTACAACGA GTAACTTG	15743
GEGRACEU A GEGEGGGG 6996 CCCCGGGG GGCTAGCTRCAACGA RGGTGGG 15745 681 CGACCUAC CCGGGGGGU 6997 ACCCCCGG GGCTAGCTRCAACGA CTAGGTCC 15746 774 CGCCGGGG UCCGUGGG 6999 GGGCCCC GGCTAGCTRCAACGA CCCCCGGG 15747 7870 GGGGGUCC GUGGGCCC 6999 GGGCCCC GGCTAGCTRCAACGA CCCCGGGG 15747 7870 GGGGGUCC GUGGGCCC 6999 GGGCCCC GGCTAGCTRCAACGA CCCCGGGG 15746 7859 GGGCCCCA CUAGGCCC 7000 AGTTGGGG GGCTAGCTRCAACGA CCCCGGG 15746 7859 GGGCCCCA CUAGGCCC 7001 CGGCCTAG GGCTAGCTRCAACGA CCAGGGA 15746 7854 CAACUAG CCGGGGGC 7001 CGGCCTAG GGCTAGCTRCAACGA CCAGGGA 15756 7854 CAACUAG CCGGGGGG 7003 CCCGCGG GGCTAGCTACAACGA CTAGTGGC 15756 7854 CAACUAG CCGGGGGG 7003 CCCGCGG GGCTAGCTACACGA CTAGTGGC 15756 7859 GGCCGGG CGGGGGG 7003 CCCGCGG GGCTAGCTACACGA CCCGCGC 15756 7859 GGCGCGG GUGACAGGA 7005 TCTCTGCA GGTAGCTACAACGA GCCCCCG 15756 7859 GGGGGGG CGACGGGG 7005 TCTCTGCA GGTAGCTACACGA CCCCCGC 15756 7850 GGACGGG A CCGUCGG 7007 CAGGATG GGCTACCTACACGA CCCCCGC 15756 7850 GGACGGG A UCCUGCC 7008 GGCCAGGA GGCTACCTACACGA CCCCCGC 15756 7850 GGACGGG A UCCUGCC 7008 GGCAGGA GGCTAGCTACACGA GCCTCCG 15756 7851 UCCUGCC CCCACCCU 7009 AGGTTGG GGCTAGCTACACGA GGCTCCT 15757 7851 UCCUGCC CCCACCCU 7009 AGGTTGG GGCTAGCTACACGA GGCTCCT 15757 7851 UCCUGCC CCCACCCU 7009 AGGTTGG GGCTAGCTACACGA GGCAGGA 15758 7851 UCCUGCC CCCACCCU 7009 AGGTTGG GGCTAGCTACACGA GGCAGGG 15756 7852 CAUUCUU CCCACCCU 7009 AGGTTGG GGCTAGCTACACGA AGGTCGC 15756 7854 UCCUGCCC CCCACCCU 7009 AGGTTGG GGCTAGCTACACGA AGGTCGC 15766 7855 AGGCCCC CCCUCAGGG 7011 ANTOGCA GGCTAGCTACACGA AGGTCGC 15766 7856 CACCUCAGG UCCCGGGG 7011 ANTOGCA GGCTAGCTACACGA GGCCAGGG 15766 7856 CACCUCAGG CUAGAGGC 7012 CCCCGGG GGCTAGCTACACGA CCCTCTAT 15766 7856 CACCUCAG CC					
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528 GAUAGGUU G UCGCCUUC 7027 GAAGGCGA GGCTAGCTACAACGA AACCTATC 1576 525 AGGUUGU G CCUUCCAC 7028 GTGGAAGG GGCTAGCTACAACGA GACAACCT 15777 518 CGCCUUCC A CGAGGUUG 7029 CAACCTCG GGCTAGCTACAACGA GACAACCT 15778 513 UCCACGAG G UUGCGACC 7030 GGTCGCAA GGCTAGCTACAACGA CTCGTGGA 15779 510 ACGAGGUU G CGACCGCU 7031 AGCGGTCG GGCTAGCTACAACGA ACCTCGT 15780 507 AGGUUGCG A CCGCUCGG 7032 CCGAGCGG GGCTAGCTACAACGA GGTCGCAA 15781 504 UUGCGACC G CUCGGAAG 7033 CTTCCGAG GGCTAGCTACAACGA GGTCGCAA 15782 496 GCUCGGAA G UCUUCCUA 7034 TAGGAAGA GGCTAGCTACAACGA TTCCGAGC 15783 487 UCUUCCUA G UCGCGCGC 7035 GCGCGCGA GGCTAGCTACAACGA TAGGAAGA 15784 484 UCCUAGUC G CGCCACA 7036 TGTGCGCG GGCTAGCTACAACGA GACTAGGA 15785 482 CUAGUCGC G CGCACACC 7037 GGTGTGCG GGCTAGCTACAACGA GCGCGCA 15787 478 UCGCGCGC A CACCCCA 7038 TGGGTGG GGCTAGCTACAACGA GCGCGCA <	535	CCUUGGGG A UAGGUUGU	7025	ACAACCTA GGCTAGCTACAACGA CCCCAAGG	15774
525 AGGUUGUC G CCUUCCAC 7028 GTGGAAGG GGCTAGCTACAACGA GACAACCT 15777 518 CGCCUUCC A CGAGGUUG 7029 CAACCTCG GGCTAGCTACAACGA GGAAGGCG 15778 513 UCCACGAG G UUGCGACC 7030 GGTCGCAA GGCTAGCACACGA CTCGTGGA 15779 510 ACGAGGUU G CGACCGCU 7031 AGCGGTCG GGCTAGCTACAACGA AACCTCGT 15780 507 AGGUUGCG A CCGCUCGG 7032 CCGAGCGG GGCTAGCTACAACGA CGCAACCT 15781 504 UUGCGACC G CUCGGAAG 7033 CTTCCGAG GGCTAGCTACAACGA GGTCGCAA 15782 496 GCUCGGAA G UCUUCCUA 7034 TAGGAAGA GGCTAGCTACAACGA TTCCGAGC 15783 487 UCUUCCUA G UCGCGCGC 7035 GCGCGCGA GGCTAGCTACAACGA TAGGAACA 15784 484 UCCUAGUC G CGCACACC 7036 TGTGCGCG GGCTAGCTACAACGA GCGACTAG 15786 480 AGUCGCGC G CACACCCA 7037 GGTGTGCTACAACGA GCGCCGACT 15786 478 UCGCGCGC A CACCCAAC 7039 GTTGGTG GGCTAGCTACAACGA GCGCGCGA 15788 476 GCGCGCAC A CCCCAAC 7039 GTTGGGT GGCTAGCTACAACGA GCGCGCGA 15	531	GGGGAUAG G UUGUCGCC	7026	GGCGACAA GGCTAGCTACAACGA CTATCCCC	15775
518 CGCCUUCC A CGAGGUUG 7029 CAACCTCG GGCTAGCTACAACGA GGAAGGCG 15778 513 UCCACGAG G UUGCGACC 7030 GGTCGCAA GGCTAGCTACAACGA CTCGTTGGA 15779 510 ACGAGGUU G CGACCGCU 7031 AGCGGTCG GGCTAGCTACAACGA AACCTCGT 15780 507 AGGUUGCG A CCGCUCGG 7032 CCGAGCGG GGCTAGCTACAACGA CGCAACCT 15781 504 UUGCGACC G CUCGGAAG 7033 CTTCCGAG GGCTAGCTACAACGA GGTCGCAA 15782 496 GCUCGGAA G UCUUCCUA 7034 TAGGAAGA GGCTAGCTACAACGA TTCCGAGC 15783 487 UCUUCCUA G UCGCGCGC 7035 GCGCGCGA GGCTAGCTACAACGA TAGGAAGA 15784 484 UCCUAGUC G CGCACACC 7037 GGTGTGCG GGCTAGCTACAACGA GCGACTAG 15786 480 AGUCGCGC G CACACCCA 7038 TGGGTGG GGCTAGCTACAACGA GCGCGCAT 15787 478 UCGCGCGC A CACCCAAC 7038 TGGGTTGG GGCTAGCTACAACGA GCGCGCA 15789 471 CACACCCA A CCUAGCC 7040 AGGTTGGTGACAACGA TGCGCGC 15789 471 CACACCCA A CCUGGGG 7041 GCCCAGGG GGCTAGCTACAACGA TGGGTGCC 1	528	GAUAGGUU G UCGCCUUC	7027	GAAGGCGA GGCTAGCTACAACGA AACCTATC	15776
513 UCCACGAG G UUGCGACC 7030 GGTCGCAA GGCTAGCTACAACGA CTCGTGGA 15779 510 ACGAGGUU G CGACCGCU 7031 AGCGGTCG GGCTAGCTACAACGA AACCTCGT 15780 507 AGGUUGCG A CCGCUCGG 7032 CCGAGCGG GGCTAGCTACAACGA CGCAACCT 15781 504 UUGCGACC G CUCGGAAG 7033 CTTCCCAG GGCTAGCTACAACGA GGTCGCAA 15782 496 GCUCGGAA G UCUUCCUA 7034 TAGGAAGA GGCTAGCTACAACGA TCGAGC 15783 487 UCUUCCUA G UCGCGCC 7035 GCGCGCGA GGCTAGCTACAACGA TAGGAAGA 15784 484 UCCUAGUC G CGCACACC 7036 TGTGCGCG GGCTAGCTACAACGA GCGACTAG 15786 480 AGUCGCG G CACACCCA 7037 GGTGTGCG GGCTAGCTACAACGA GCGCACT 15787 478 UCGCGGCC A CACCCAA 7038 TGGGTGTG GGCTAGCTACAACGA GCGCGCA 15788 476 GCGCGCAC A CCCAACCU 7040 AGGTTGGG GGCTAGCTACAACGA GCGCGCG 15789 471 CACACCCA A CCUGGGC 7041 GCCCAGG GGCTAGCTACAACGA TGGGTGT 15791 458 GGGCCCCU G CGCGCAA 7042 CGCAGGG GCTAGCTACAACGA CCCAGGT 1579	525	AGGUUGUC G CCUUCCAC	7028	GTGGAAGG GGCTAGCTACAACGA GACAACCT	15777
ACGAGGUU G CGACCGCU 7031 AGCGGTCG GGCTAGCTACAACGA AACCTCGT 15780 507 AGGUUGCG A CCGCUCGG 7032 CCGAGCGG GGCTAGCTACAACGA CGCAACCT 15781 504 UUGCGACC G CUCGGAAG 7033 CTTCCGAG GGCTAGCTACAACGA GGTCGCAA 15782 496 GCUCGGAA G UCUUCCUA 7034 TAGGAAGA GGCTAGCTACAACGA TTCCGAGC 15783 487 UCUUCCUA G UCGCGCGC 7035 GCGCGCGA GGCTAGCTACAACGA TTCCGAGC 15784 484 UCCUAGUC G CGCGCACA 7036 TGTGCGCG GGCTAGCTACAACGA TAGGAAGA 15784 485 UCUUGCGC G CGCCACAC 7037 GGTGTGCG GGCTAGCTACAACGA GACTAGGA 15785 480 AGUCGCG G CACACCC 7037 GGTGTGCG GGCTAGCTACAACGA GCGCGCACT 15787 478 UCGCGCGC A CACCCCAA 7038 TGGGTGTG GGCTAGCTACAACGA GCGCGCACT 15787 478 UCGCGCGC A CACCCCAAC 7039 GTTGGGTG GGCTAGCTACAACGA GCGCGCGA 15788 476 GCGCGCAC A CCCCAACC 7040 AGGTTGGG GGCTAGCTACAACGA GTGCGCGC 15789 471 CACACCCA A CCUGGGGC 7041 GCCCCAGG GGCTAGCTACAACGA TGGGTGTG 15790 464 AACCUGGG G CCCCUGCG 7042 CGCAGGGG GGCTAGCTACAACGA CCCAGGTT 15791 458 GGGCCCCU G CGCGCAA 7043 TTGCCGCG GGCTAGCTACAACGA AGGGGCCC 15792 456 GCCCCUGC G CGCGCAAC 7044 TGTTGCCG GGCTAGCTACAACGA AGGGGCC 15793 453 CCUGCGCG G CAACAGGU 7045 ACCTGTTG GGCTAGCTACAACGA CCCGCGCG 15794 450 GCCCCUGC G CAACAGGU 7045 ACCTGTTG GGCTAGCTACAACGA CGCGCACG 15794 450 GCGCGCCA A CAGGUAAA 7046 TTTACCTG GGCTAGCTACAACGA TGCCGCC 15795 464 GCCACACA CAACAGGU 7047 GGAGTTTA GGCTAGCTACAACGA TGCCGCCC 15795 456 GCCCCUGC G CAACAGGU 7045 ACCTGTTG GGCTAGCTACAACGA CGCGCACG 15794 457 CCUGCGCG G CAACAGGU 7045 ACCTGTTG GGCTAGCTACAACGA CGCGCACG 15795 458 GGCCCUGC G CAACAGGU 7045 ACCTGTTG GGCTAGCTACAACGA TGCCGCCC 15795 450 GCGCGCCA A CAGGUAAA 7046 TTTACCTG GGCTAGCTACAACGA TGCCGCCC 15795 450 GCGCGCCA A CAGGUAAA 7046 TTTACCTG GGCTAGCTACAACGA CTGTTGCC 15796 442 ACAGGUAA A CUCCACCA 7048 TGGTGGAG GGCTAGCTACAACGA TGCCGCCC 15795	518	CGCCUUCC A CGAGGUUG	7029	CAACCTCG GGCTAGCTACAACGA GGAAGGCG	15778
AGGUUGCG A CCGCUCGG 7032 CCGAGCGG GGCTAGCTACAACGA CGCAACCT 15781 504 UUGCGACC G CUCGGAAG 7033 CTTCCGAG GGCTAGCTACAACGA GGTCGCAA 15782 496 GCUCGGAA G UCUUCCUA 7034 TAGGAAGA GGCTAGCTACAACGA TTCCGAGC 15783 487 UCUUCCUA G UCGCGCGC 7035 GCGCGCGA GGCTAGCTACAACGA TAGGAAGA 15784 484 UCCUAGUC G CGCGCACA 7036 TGTGCGCG GGCTAGCTACAACGA GACTAGGA 15785 485 CUAGUCGC G CGCACACC 7037 GGTGTGCG GGCTAGCTACAACGA GACTAGGA 15786 480 AGUCGCGC G CACACCCA 7038 TGGGTGTG GGCTAGCTACAACGA GCGACTAG 15787 478 UCGCGCGC A CACCCAAC 7039 GTTGGGT GGCTAGCTACAACGA GCGCGCGA 15788 476 GCGCGCAC A CCCCAACCU 7040 AGGTTGGG GGCTAGCTACAACGA GTGCGCGC 15789 471 CACACCCA A CCUGGGGC 7041 GCCCCAGG GGCTAGCTACAACGA TGGGTGTG 15790 464 AACCUGGG G CCCCUGCG 7042 CGCAGGGG GGCTAGCTACAACGA CCCAGGTT 15791 458 GGGCCCCU G CGCGCAAC 7049 TTGCCGCG GGCTAGCTACAACGA AGGGGCCC 15792 456 GCCCCUGC G CGGCAACA 7044 TGTTGCCG GGCTAGCTACAACGA GCAGGGC 15793 450 GCGCGCA A CAGGUAAA 7044 TGTTGCCG GGCTAGCTACAACGA CGCGCAGG 15794 450 GCCCCUGC G CAACACGU 7045 ACCTGTTG GGCTAGCTACAACGA TGCCGCC 15794 450 GCGCGCA A CAGGUAAA 7046 TTTACCTG GGCTAGCTACAACGA TGCCGCC 15795 451 CCUGCGCG G CAACAGGU 7045 ACCTGTTG GGCTAGCTACAACGA TGCCGCCC 15795 452 ACAGGUAA A CUCCACCA 7048 TGGTGGG GGCTAGCTACAACGA TGCCGCCC 15795 453 CCUGCGCG G CAACAGGU 7045 ACCTGTTG GGCTAGCTACAACGA TGCCGCCC 15795 454 GGCAACAG G UAAACUCC 7047 GGAGTTTA GGCTAGCTACAACGA TGCCGCCC 15795 454 GAGGUAA A CUCCACCA 7048 TGGTGGAG GGCTAGCTACAACGA TTACCTGT 15796	513	UCCACGAG G UUGCGACC	7030	GGTCGCAA GGCTAGCTACAACGA CTCGTGGA	15779
UUGCGACC G CUCGGAAG 7033 CTTCCGAG GGCTAGCTACAACGA GGTCGCAA 15782 496 GCUCGGAA G UCUUCCUA 7034 TAGGAAGA GGCTAGCTACAACGA TTCCGAGC 15783 487 UCUUCCUA G UCGCGCGC 7035 GCGCGCA GGCTAGCTACAACGA TAGGAAGA 15784 484 UCCUAGUC G CGCGCACA 7036 TGTGCGCG GGCTAGCTACAACGA GACTAGGA 15785 482 CUAGUCGC G CGCACAC 7037 GGTGTGCG GGCTAGCTACAACGA GCGACTAG 15786 480 AGUCGCGC G CACACCCA 7038 TGGGTGTG GGCTAGCTACAACGA GCGCACTA 15787 478 UCGCGCGC A CACCCAAC 7039 GTTGGGT GGCTAGCTACAACGA GCGCGACT 15788 476 GCGCGCAC A CCCAACCU 7040 AGGTTGGG GGCTAGCTACAACGA GCGCGCC 15789 471 CACACCCA A CCUGGGGC 7041 GCCCCAGG GGCTAGCTACAACGA TGGGTGTG 15790 464 AACCUGGG G CCCCUGCG 7042 CGCAGGGG GGCTAGCTACAACGA CCCAGGTT 15791 458 GGGCCCCU G CGCGCAA 7043 TTGCCGCG GGCTAGCTACAACGA AGGGGCC 15792 456 GCCCCUGC G CGCCAACA 7044 TGTTGCCG GGCTAGCTACAACGA CGCGCGC 15793 453 CCUGCGCG C CAACAGGU 7045 ACCTGTTG GGCTAGCTACAACGA CGCGCAGG 15794 450 GCGCGGCA A CAGGUAAA 7044 TGTTGCCG GGCTAGCTACAACGA CGCGCAGG 15794 450 GCGCGGCA A CAGGUAAA 7046 TTTACCTG GGCTAGCTACAACGA TGCCGCC 15795 451 CCUGCGCG C CAACAGGU 7045 ACCTGTTG GGCTAGCTACAACGA CGCCCAGG 15794 452 ACAGGUAA A CUCCACCA 7048 TGGTGGAG GGCTAGCTACAACGA TGCCGCCC 15795 453 CCUGCGCG CAACAGGU 7045 ACCTGTTG GGCTAGCTACAACGA TGCCGCCC 15795 454 GGCAACAG G UAAACUCC 7047 GGAGTTTA GGCTACAACGA TGCCGCCC 15795 456 GCCAACAG G UAAACUCC 7047 GGAGTTTA GGCTACAACGA TGCCGCCC 15795 457 GCCAGGGAACA 7048 TGGTGGAG GGCTAGCTACAACGA TGCCGCCC 15795 457 GCCAGGGAACA 7048 TGGTGGAG GGCTAGCTACAACGA TGCCGCCC 15795	510	ACGAGGUU G CGACCGCU	7031	AGCGGTCG GGCTAGCTACAACGA AACCTCGT	15780
496 GCUCGGAA G UCUUCCUA 7034 TAGGAAGA GGCTAGCTACAACGA TTCCGAGC 15783 487 UCUUCCUA G UCGCGCGC 7035 GCGCGCGA GGCTAGCTACAACGA TAGGAAGA 15784 484 UCCUAGUC G CGCGCACA 7036 TGTGCGCG GGCTAGCTACAACGA GACTAGGA 15785 482 CUAGUCGC G CGCACACC 7037 GGTGTGCG GGCTAGCTACAACGA GCGACTAG 15786 480 AGUCGCGC G CACACCCA 7038 TGGGTGTG GGCTAGCTACAACGA GCGCGACT 15787 478 UCGCGCGC A CACCCCAAC 7039 GTTGGGTG GGCTAGCTACAACGA GCGCGCGA 15788 476 GCGCGCAC A CCCAACCU 7040 AGGTTGGG GGCTAGCTACAACGA GCGCGCGA 15789 471 CACACCCA A CCUGGGGC 7041 GCCCCAGG GGCTAGCTACAACGA TGGGTGTG 15790 464 AACCUGGG G CCCCUGCG 7042 CGCAGGGG GGCTAGCTACAACGA TGGGTGTG 15791 458 GGGCCCCU G CGCGGCAA 7043 TTGCCGCG GGCTAGCTACAACGA AGGGGCC 15792 456 GCCCCUGC G CGCCAACA 7044 TGTTGCCG GGCTAGCTACAACGA GCAGGGGC 15793 453 CCUGCGCG G CAACAGGU 7045 ACCTGTTG GGCTAGCTACAACGA CGCGCAGG 15794 450 GCGCGGCA A CAGGUAAA 7046 TTTACCTG GGCTAGCTACAACGA TGCCGCG 15795 446 GGCAACAG G UAAACUCC 7047 GGAGTTA GGCTAGCAACGA CTGTTGCC 15796 442 ACAGGUAA A CUCCACCA 7048 TGGTGGAG GGCTAGCTACAACGA CTGTTGCC 15796	507	AGGUUGCG A CCGCUCGG	7032	CCGAGCGG GGCTAGCTACAACGA CGCAACCT	15781
496 GCUCGGAA G UCUUCCUA 7034 TAGGAAGA GGCTAGCTACAACGA TTCCGAGC 15783 487 UCUUCCUA G UCGCGCGC 7035 GCGCGCGA GGCTAGCTACAACGA TAGGAAGA 15784 484 UCCUAGUC G CGCGCACA 7036 TGTGCGCG GGCTAGCTACAACGA GACTAGGA 15785 482 CUAGUCGC G CGCACACC 7037 GGTGTGCG GGCTAGCTACAACGA GCGACTAG 15786 480 AGUCGCGC G CACACCCA 7038 TGGGTGTG GGCTAGCTACAACGA GCGCGACT 15787 478 UCGCGCGC A CACCCAAC 7039 GTTGGGTG GGCTAGCTACAACGA GCGCGCGA 15788 476 GCGCGCAC A CCCAACCU 7040 AGGTTGGG GGCTAGCTACAACGA GTGCGCGC 15789 471 CACACCCA A CCUGGGGC 7041 GCCCCAGG GGCTAGCTACAACGA TGGGTGTG 15790 464 AACCUGGG G CCCCUGCG 7042 CGCAGGGG GGCTAGCTACAACGA TGGGTGTG 15791 458 GGGCCCCU G CGCGGCAA 7043 TTGCCGCG GGCTAGCTACAACGA AGGGGCCC 15792 456 GCCCCUGC G CGGCAACA 7044 TGTTGCCG GGCTAGCTACAACGA GCAGGGGC 15793 453 CCUGCGCG G CAACAGGU 7045 ACCTGTTG GGCTAGCTACAACGA CGCGCAGG 15794 450 GCGCGGCA A CAGGUAAA 7046 TTTACCTG GGCTAGCTACAACGA TGCCGCG 15795 446 GGCAACAG G UAAACUCC 7047 GGAGTTTA GGCTAGCAACGA CTGTTGCC 15796 442 ACAGGUAA A CUCCACCA 7048 TGGTGGAG GGCTAGCTACAACGA CTGTTGCC 15796	504	UUGCGACC G CUCGGAAG	7033	CTTCCGAG GGCTAGCTACAACGA GGTCGCAA	15782
487 UCUUCCUA G UCGCGCGC 7035 GCGCGCGA GGCTAGCTACAACGA TAGGAAGA 15784 484 UCCUAGUC G CGCGCACA 7036 TGTGCGCG GGCTAGCTACAACGA GACTAGGA 15785 482 CUAGUCGC G CGCACACC 7037 GGTGTGCG GGCTAGCTACAACGA GCGACTAG 15786 480 AGUCGCGC G CACACCCA 7038 TGGGTGTG GGCTAGCTACAACGA GCGCGACT 15787 478 UCGCGCGC A CACCCAAC 7039 GTTGGGTG GGCTAGCTACAACGA GCGCGCGA 15788 476 GCGCGCAC A CCCAACCU 7040 AGGTTGGG GGCTAGCTACAACGA GTGCGCGC 15789 471 CACACCCA A CCUGGGGC 7041 GCCCCAGG GGCTAGCTACAACGA TGGGTGTG 15790 464 AACCUGGG G CCCCUGCG 7042 CGCAGGGG GGCTAGCTACAACGA CCCAGGTT 15791 458 GGGCCCCU G CGCGGCAA 7043 TTGCCGCG GGCTAGCTACAACGA AGGGGCCC 15792 456 GCCCCUGC G CGGCAACA 7044 TGTTGCCG GGCTAGCTACAACGA GCAGGGGC 15793 453 CCUGCGCG G CAACAGGU 7045 ACCTGTTG GGCTAGCTACAACGA CGCGCAGG 15794 450 GCGCGGCA A CAGGUAAA 7046 TTTACCTG GGCTAGCTACAACGA TGCCGCG 15795 446 GGCAACAG G UAAACUCC 7047 GGAGTTTA GGCTAGCAACGA CTGTTGCC 15796 442 ACAGGUAA A CUCCACCA 7048 TGGTGGAG GGCTAGCTACAACGA CTGTTGCC 15796	496	GCUCGGAA G UCUUCCUA	7034	TAGGAAGA GGCTAGCTACAACGA TTCCGAGC	
482 CUAGUCGC G CGCACACC 7037 GGTGTGCG GGCTAGCTACAACGA GCGACTAG 15786 480 AGUCGCGC G CACACCCA 7038 TGGGTGTG GGCTAGCTACAACGA GCGCGACT 15787 478 UCGCGCGC A CACCCAAC 7039 GTTGGGTG GGCTAGCTACAACGA GCGCGCGA 15788 476 GCGCGCAC A CCCAACCU 7040 AGGTTGGG GGCTAGCTACAACGA GTGCGCGC 15789 471 CACACCCA A CCUGGGGC 7041 GCCCCAGG GGCTAGCTACAACGA TGGGTGTG 15790 464 AACCUGGG G CCCCUGCG 7042 CGCAGGGG GGCTAGCTACAACGA CCCAGGTT 15791 458 GGGCCCCU G CGCGGCAA 7043 TTGCCGCG GGCTAGCTACAACGA AGGGGCCC 15792 456 GCCCCUGC G CGGCAACA 7044 TGTTGCCG GGCTAGCTACAACGA GCAGGGGC 15793 453 CCUGCGCG G CAACAGGU 7045 ACCTGTTG GGCTAGCTACAACGA CGCGCAGG 15794 450 GCGCGGCA A CAGGUAAA 7046 TTTACCTG GGCTAGCTACAACGA TGCCGCGC 15795 446 GGCAACAG G UAAACUCC 7047 GGAGTTTA GGCTAGCTACAACGA CTGTTGCC 15796 442 ACAGGUAA A CUCCACCA 7048 TGGTGGAG GGCTAGCTACAACGA TTACCTGT 15797	487	UCUUCCUA G UCGCGCGC	7035		
480 AGUCGCGC G CACACCCA 7038 TGGGTGTG GGCTAGCTACAACGA GCGCGACT 15787 478 UCGCGCGC A CACCCAAC 7039 GTTGGGTG GGCTAGCTACAACGA GCGCGCGA 15788 476 GCGCGCAC A CCCAACCU 7040 AGGTTGGG GGCTAGCTACAACGA GTGCGCGC 15789 471 CACACCCA A CCUGGGGC 7041 GCCCCAGG GGCTAGCTACAACGA TGGGTGTG 15790 464 AACCUGGG G CCCCUGCG 7042 CGCAGGGG GGCTAGCTACAACGA CCCAGGTT 15791 458 GGGCCCCU G CGCGGCAA 7043 TTGCCGCG GGCTAGCTACAACGA AGGGGCCC 15792 456 GCCCCUGC G CGGCAACA 7044 TGTTGCCG GGCTAGCTACAACGA GCAGGGGC 15793 453 CCUGCGCG G CAACAGGU 7045 ACCTGTTG GGCTAGCTACAACGA CGCGCAGG 15794 450 GCGCGGCA A CAGGUAAA 7046 TTTACCTG GGCTAGCTACAACGA TGCCGCGC 15795 446 GGCAACAG G UAAACUCC 7047 GGAGTTTA GGCTAGCTACAACGA CTGTTGCC 15796 442 ACAGGUAA A CUCCACCA 7048 TGGTGGAG GGCTAGCTACAACGA TTACCTGT 15797	484	UCCUAGUC G CGCGCACA	7036	TGTGCGCG GGCTAGCTACAACGA GACTAGGA	15785
478 UCGCGCGC A CACCCAAC 7039 GTTGGGTG GGCTAGCTACAACGA GCGCGCGA 15788 476 GCGCGCAC A CCCAACCU 7040 AGGTTGGG GGCTAGCTACAACGA GTGCGCGC 15789 471 CACACCCA A CCUGGGGC 7041 GCCCCAGG GGCTAGCTACAACGA TGGGTGTG 15790 464 AACCUGGG G CCCCUGCG 7042 CGCAGGGG GGCTAGCTACAACGA CCCAGGTT 15791 458 GGGCCCCU G CGCGGCAA 7043 TTGCCGCG GGCTAGCTACAACGA AGGGGCCC 15792 456 GCCCCUGC G CGGCAACA 7044 TGTTGCCG GGCTAGCTACAACGA GCAGGGGC 15793 453 CCUGCGCG G CAACAGGU 7045 ACCTGTTG GGCTAGCTACAACGA CGCCCAGG 15794 450 GCGCGGCA A CAGGUAAA 7046 TTTACCTG GGCTAGCTACAACGA TGCCGCGC 15795 446 GGCAACAG G UAAACUCC 7047 GGAGTTTA GGCTAGCTACAACGA CTGTTGCC 15796 442 ACAGGUAA A CUCCACCA 7048 TGGTGGAG GGCTAGCTACAACGA TTACCTGT 15797	482	CUAGUCGC G CGCACACC	7037	GGTGTGCG GGCTAGCTACAACGA GCGACTAG	15786
476 GCGCGCAC A CCCAACCU 7040 AGGTTGGG GGCTAGCTACAACGA GTGCGCGC 15789 471 CACACCCA A CCUGGGGC 7041 GCCCCAGG GGCTAGCTACAACGA TGGGTGTG 15790 464 AACCUGGG G CCCCUGCG 7042 CGCAGGGG GGCTAGCTACAACGA CCCAGGTT 15791 458 GGGCCCCU G CGCGGCAA 7043 TTGCCGCG GGCTAGCTACAACGA AGGGGCCC 15792 456 GCCCCUGC G CGGCAACA 7044 TGTTGCCG GGCTAGCTACAACGA GCAGGGGC 15793 453 CCUGCGCG G CAACAGGU 7045 ACCTGTTG GGCTAGCTACAACGA CGCGCAGG 15794 450 GCGCGGCA A CAGGUAAA 7046 TTTACCTG GGCTAGCTACAACGA TGCCGCGC 15795 446 GGCAACAG G UAAACUCC 7047 GGAGTTTA GGCTAGCTACAACGA CTGTTGCC 15796 442 ACAGGUAA A CUCCACCA 7048 TGGTGGAG GGCTAGCTACAACGA TTACCTGT 15797	480	AGUCGCGC G CACACCCA	7038	TGGGTGTG GGCTAGCTACAACGA GCGCGACT	15787
471 CACACCCA A CCUGGGGC 7041 GCCCCAGG GGCTAGCTACAACGA TGGGTGTG 15790 464 AACCUGGG G CCCCUGCG 7042 CGCAGGGG GGCTAGCTACAACGA CCCAGGTT 15791 458 GGGCCCCU G CGCGCAA 7043 TTGCCGCG GGCTAGCTACAACGA AGGGGCCC 15792 456 GCCCCUGC G CGGCAACA 7044 TGTTGCCG GGCTAGCTACAACGA GCAGGGGC 15793 453 CCUGCGCG G CAACAGGU 7045 ACCTGTTG GGCTAGCTACAACGA CGCGCAGG 15794 450 GCGCGGCA A CAGGUAAA 7046 TTTACCTG GGCTAGCTACAACGA TGCCGCGC 15795 446 GGCAACAG G UAAACUCC 7047 GGAGTTTA GGCTAGCTACAACGA CTGTTGCC 15796 442 ACAGGUAA A CUCCACCA 7048 TGGTGGAG GGCTAGCTACAACGA TTACCTGT 15797	478	UCGCGCGC A CACCCAAC	7039	GTTGGGTG GGCTAGCTACAACGA GCGCGCGA	15788
464 AACCUGGG G CCCCUGCG 7042 CGCAGGGG GGCTAGCTACAACGA CCCAGGTT 15791 458 GGGCCCCU G CGCGCAA 7043 TTGCCGCG GGCTAGCTACAACGA AGGGGCCC 15792 456 GCCCCUGC G CGGCAACA 7044 TGTTGCCG GGCTAGCTACAACGA GCAGGGGC 15793 453 CCUGCGCG G CAACAGGU 7045 ACCTGTTG GGCTAGCTACAACGA CGCGCAGG 15794 450 GCGCGGCA A CAGGUAAA 7046 TTTACCTG GGCTAGCTACAACGA TGCCGCGC 15795 446 GGCAACAG G UAAACUCC 7047 GGAGTTTA GGCTAGCTACAACGA CTGTTGCC 15796 442 ACAGGUAA A CUCCACCA 7048 TGGTGGAG GGCTAGCTACAACGA TTACCTGT 15797	476	GCGCGCAC A CCCAACCU	7040	AGGTTGGG GGCTAGCTACAACGA GTGCGCGC	15789
458 GGGCCCU G CGCGGCAA 7043 TTGCCGCG GGCTAGCTACAACGA AGGGGCCC 15792 456 GCCCUGC G CGGCAACA 7044 TGTTGCCG GGCTAGCTACAACGA GCAGGGGC 15793 453 CCUGCGCG G CAACAGGU 7045 ACCTGTTG GGCTAGCTACAACGA CGCGCAGG 15794 450 GCGCGGCA A CAGGUAAA 7046 TTTACCTG GGCTAGCTACAACGA TGCCGCGC 15795 446 GGCAACAG G UAAACUCC 7047 GGAGTTTA GGCTAGCTACAACGA CTGTTGCC 15796 442 ACAGGUAA A CUCCACCA 7048 TGGTGGAG GGCTAGCTACAACGA TTACCTGT 15797	471	CACACCCA A CCUGGGGC	7041	GCCCCAGG GGCTAGCTACAACGA TGGGTGTG	15790
456 GCCCUGC G CGGCAACA 7044 TGTTGCCG GGCTAGCTACAACGA GCAGGGGC 15793 453 CCUGCGCG G CAACAGGU 7045 ACCTGTTG GGCTAGCTACAACGA CGCGCAGG 15794 450 GCGCGGCA A CAGGUAAA 7046 TTTACCTG GGCTAGCTACAACGA TGCCGCGC 15795 446 GGCAACAG G UAAACUCC 7047 GGAGTTTA GGCTAGCTACAACGA CTGTTGCC 15796 442 ACAGGUAA A CUCCACCA 7048 TGGTGGAG GGCTAGCTACAACGA TTACCTGT 15797	464	AACCUGGG G CCCCUGCG	7042	CGCAGGGG GGCTAGCTACAACGA CCCAGGTT	15791
453 CCUGCGCG G CAACAGGU 7045 ACCTGTTG GGCTAGCTACAACGA CGCGCAGG 15794 450 GCGCGGCA A CAGGUAAA 7046 TTTACCTG GGCTAGCTACAACGA TGCCGCGC 15795 446 GGCAACAG G UAAACUCC 7047 GGAGTTTA GGCTAGCTACAACGA CTGTTGCC 15796 442 ACAGGUAA A CUCCACCA 7048 TGGTGGAG GGCTAGCTACAACGA TTACCTGT 15797	458	GGGCCCCU G CGCGGCAA	7043	TTGCCGCG GGCTAGCTACAACGA AGGGGCCC	15792
450 GCGCGGCA A CAGGUAAA 7046 TTTACCTG GGCTAGCTACAACGA TGCCGCGC 15795 446 GGCAACAG G UAAACUCC 7047 GGAGTTTA GGCTAGCTACAACGA CTGTTGCC 15796 442 ACAGGUAA A CUCCACCA 7048 TGGTGGAG GGCTAGCTACAACGA TTACCTGT 15797	456	GCCCCUGC G CGGCAACA	7044	TGTTGCCG GGCTAGCTACAACGA GCAGGGGC	15793
446 GGCAACAG G UAAACUCC 7047 GGAGTTTA GGCTAGCTACAACGA CTGTTGCC 15796 442 ACAGGUAA A CUCCACCA 7048 TGGTGGAG GGCTAGCTACAACGA TTACCTGT 15797	453	CCUGCGCG G CAACAGGU	7045	ACCTGTTG GGCTAGCTACAACGA CGCGCAGG	15794
442 ACAGGUAA A CUCCACCA 7048 TGGTGGAG GGCTAGCTACAACGA TTACCTGT 15797	450	GCGCGGCA A CAGGUAAA	7046	TTTACCTG GGCTAGCTACAACGA TGCCGCGC	15795
	446	GGCAACAG G UAAACUCC	7047	GGAGTTTA GGCTAGCTACAACGA CTGTTGCC	15796
437 UAAACUCC A CCAACGAU 7049 ATCGTTGG GGCTAGCTACAACGA GGACTTTA 15798	442	ACAGGUAA A CUCCACCA	7048	TGGTGGAG GGCTAGCTACAACGA TTACCTGT	15797
	437	UAAACUCC A CCAACGAU	7049	ATCGTTGG GGCTAGCTACAACGA GGAGTTTA	15798

(422	GTGGT GGT			
433	CUCCACCA A CGAUCUGA	7050	TCAGATCG GGCTAGCTACAACGA TGGTGGAG	15799
430	CACCAACG A UCUGACCA	7051	TGGTCAGA GGCTAGCTACAACGA CGTTGGTG	15800
425	ACGAUCUG A CCACCGCC	7052	GGCGGTGG GGCTAGCTACAACGA CAGATCGT	15801
422	AUCUGACC A CCGCCCGG	7053	CCGGGCGG GGCTAGCTACAACGA GGTCAGAT	15802
419	UGACCACC G CCCGGGAA	7054	TTCCCGGG GGCTAGCTACAACGA GGTGGTCA	15803
411	GCCCGGGA A CUUGACGU	7055	ACGTCAAG GGCTAGCTACAACGA TCCCGGGC	15804
406	GGAACUUG A CGUCCUGU	7056	ACAGGACG GGCTAGCTACAACGA CAAGTTCC	15805
404	AACUUGAC G UCCUGUGG	7057	CCACAGGA GGCTAGCTACAACGA GTCAAGTT	15806
399	GACGUCCU G UGGGCGGC	7058	GCCGCCCA GGCTAGCTACAACGA AGGACGTC	15807
395	UCCUGUGG G CGGCGGUU	7059	AACCGCCG GGCTAGCTACAACGA CCACAGGA	15808
392	UGUGGGCG G CGGUUGGU	7060	ACCAACCG GGCTAGCTACAACGA CGCCCACA	15809
389	GGGCGGCG G UUGGUGUU	7061	AACACCAA GGCTAGCTACAACGA CGCCGCCC	15810
385	GGCGGUUG G UGUUACGU	7062	ACGTAACA GGCTAGCTACAACGA CAACCGCC	15811
383	CGGUUGGU G UUACGUUU	7063	AAACGTAA GGCTAGCTACAACGA ACCAACCG	15812
380	UUGGUGUU A CGUUUGGU	7064	ACCAAACG GGCTAGCTACAACGA AACACCAA	15813
378	GGUGUUAC G UUUGGUUU	7065	AAACCAAA GGCTAGCTACAACGA GTAACACC	15814
373	UACGUUUG G UUUUUCUU	7066	AAGAAAAA GGCTAGCTACAACGA CAAACGTA	
360	UCUUUGAG G UUUAGGAU	7067	ATCCTAAA GGCTAGCTACAACGA CTCAAAGA	15815
353	GGUUUAGG A UUCGUGCU	7068	AGCACGAA GGCTAGCTACAACGA CCTAAACC	15816
349	UAGGAUUC G UGCUCAUG	7069	CATGAGCA GGCTAGCTACAACGA GAATCCTA	15817
347	GGAUUCGU G CUCAUGGU	7070	ACCATGAG GGCTAGCTACAACGA ACGAATCCTA	15818
343	UCGUGCUC A UGGUGCAC	7071	GTGCACCA GGCTAGCTACAACGA GAGCACGA	15819
340	UGCUCAUG G UGCACGGU	7072		15820
338	CUCAUGGU G CACGGUCU	7073	ACCGTGCA GGCTAGCTACAACGA CATGAGCA	15821
336	CAUGGUGC A CGGUCUAC	7074	AGACCGTG GGCTAGCTACAACGA ACCATGAG	15822
333	GGUGCACG G UCUACGAG	7075	GTAGACCG GGCTAGCTACAACGA GCACCATG	15823
329	CACGGUCU A CGAGACCU	7075	CTCGTAGA GGCTAGCTACAACGA CGTGCACC	15824
324	UCUACGAG A CCUCCCGG	7077	AGGTCTCG GGCTAGCTACAACGA AGACCGTG	15825
314	CUCCCGGG G CACUCGCA	7078	CCGGGAGG GGCTAGCTACAACGA CTCGTAGA	15826
312	CCCGGGGC A CUCGCAAG		TGCGAGTG GGCTAGCTACAACGA CCCGGGAG	15827
308	GGGCACUC G CAAGCACC	7079	CTTGCGAG GGCTAGCTACAACGA GCCCCGGG	15828
304	ACUCGCAA G CACCCUAU	7080	GGTGCTTG GGCTAGCTACAACGA GAGTGCCC	15829
302	UCGCAAGC A CCCUAUCA	7081	ATAGGGTG GGCTAGCTACAACGA TTGCGAGT	15830
297	AGCACCCU A UCAGGCAG	7082	TGATAGGG GGCTAGCTACAACGA GCTTGCGA	15831
292	CCUAUCAG G CAGUACCA	7083	CTGCCTGA GGCTAGCTACAACGA AGGGTGCT	15832
289	AUCAGGCA G UACCACAA	7084	TGGTACTG GGCTAGCTACAACGA CTGATAGG	15833
287		7085	TTGTGGTA GGCTAGCTACAACGA TGCCTGAT	15834
284	CAGGCAGU A CCACAAGG	7086	CCTTGTGG GGCTAGCTACAACGA ACTGCCTG	15835
279	GCAGUACC A CAAGGCCU	7087	AGGCCTTG GGCTAGCTACAACGA GGTACTGC	15836
272	ACCACAAG G CCUUUCGC	7088	GCGAAAGG GGCTAGCTACAACGA CTTGTGGT	15837
	GGCCUUUC G CGACCCAA	7089	TTGGGTCG GGCTAGCTACAACGA GAAAGGCC	15838
269	CUUUCGCG A CCCAACAC	7090	GTGTTGGG GGCTAGCTACAACGA CGCGAAAG	15839
264	GCGACCCA A CACUACUC	7091	GAGTAGTG GGCTAGCTACAACGA TGGGTCGC	15840
262	GACCCAAC A CUACUCGG	7092	CCGAGTAG GGCTAGCTACAACGA GTTGGGTC	15841
259	CCAACACU A CUCGGCUA	7093	TAGCCGAG GGCTAGCTACAACGA AGTGTTGG	15842
254	ACUACUCG G CUAGCAGU	7094	ACTGCTAG GGCTAGCTACAACGA CGAGTAGT	15843
250	CUCGGCUA G CAGUCUCG	7095	CGAGACTG GGCTAGCTACAACGA TAGCCGAG	15844
247	GGCUAGCA G UCUCGCGG	7096	CCGCGAGA GGCTAGCTACAACGA TGCTAGCC	15845
242	GCAGUCUC G CGGGGGCA	7097	TGCCCCCG GGCTAGCTACAACGA GAGACTGC	15846
236	UCGCGGG G CACGCCCA	7098	TGGGCGTG GGCTAGCTACAACGA CCCCGCGA	15847
234	GCGGGGC A CGCCCAAA	7099	TTTGGGCG GGCTAGCTACAACGA GCCCCCGC	15848
232	GGGGCAC G CCCAAAUC	7100	GATTTGGG GGCTAGCTACAACGA GTGCCCCC	15849
226	ACGCCCAA A UCUCCAGG	7101	CCTGGAGA GGCTAGCTACAACGA TTGGGCGT	15850
218	AUCUCCAG G CAUUGAGC	7102	GCTCAATG GGCTAGCTACAACGA CTGGAGAT	15851
216	CUCCAGGC A UUGAGCGG	7103	CCGCTCAA GGCTAGCTACAACGA GCCTGGAG	15852
211	GGCAUUGA G CGGGUUGA	7104	TCAACCCG GGCTAGCTACAACGA TCAATGCC	15853
207	UUGAGCGG G UUGAUCCA	7105	TGGATCAA GGCTAGCTACAACGA CCGCTCAA	15854
				-5554

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203	GCGGGUUG A UCCAAGAA	7106	TTCTTGGA GGCTAGCTACAACGA CAACCCGC	15855
191	AAGAAAGG A CCCGGUCG	7107	CGACCGGG GGCTAGCTACAACGA CCTTTCTT	15856
186	AGGACCCG G UCGUCCUG	7108	CAGGACGA GGCTAGCTACAACGA CGGGTCCT	15857
183	ACCCGGUC G UCCUGGCA	7109	TGCCAGGA GGCTAGCTACAACGA GACCGGGT	15858
177	UCGUCCUG G CAAUUCCG	7110	CGGAATTG GGCTAGCTACAACGA CAGGACGA	15859
174	UCCUGGCA A UUCCGGUG	7111	CACCGGAA GGCTAGCTACAACGA TGCCAGGA	15860
168	CAAUUCCG G UGUACUCA	7112	TGAGTACA GGCTAGCTACAACGA CGGAATTG	15861
166	AUUCCGGU G UACUCACC	7113	GGTGAGTA GGCTAGCTACAACGA ACCGGAAT	15862
164	UCCGGUGU A CUCACCGG	7114	CCGGTGAG GGCTAGCTACAACGA ACACCGGA	15863
160	GUGUACUC A CCGGUUCC	7115	GGAACCGG GGCTAGCTACAACGA GAGTACAC	15864
156	ACUCACCG G UUCCGCAG	7116	CTGCGGAA GGCTAGCTACAACGA CGGTGAGT	15865
151	CCGGUUCC G CAGACCAC	7117	GTGGTCTG GGCTAGCTACAACGA GGAACCGG	15866
147	UUCCGCAG A CCACUAUG	7118	CATAGTGG GGCTAGCTACAACGA CTGCGGAA	15867
144	CGCAGACC A CUAUGGCU	7119	AGCCATAG GGCTAGCTACAACGA GGTCTGCG	15868
141	AGACCACU A UGGCUCUC	7120	GAGAGCCA GGCTAGCTACAACGA AGTGGTCT	15869
138	CCACUAUG G CUCUCCCG	7121	CGGGAGAG GGCTAGCTACAACGA CATAGTGG	15870
120	GAGGGGG G UCCUGGAG	7122	CTCCAGGA GGCTAGCTACAACGA CCCCCCTC	15871
111	UCCUGGAG G CUGCACGA	7123	TCGTGCAG GGCTAGCTACAACGA CTCCAGGA	15872
108	UGGAGGCU G CACGACAC	7124	GTGTCGTG GGCTAGCTACAACGA AGCCTCCA	15873
106	GAGGCUGC A CGACACUC	7125	GAGTGTCG GGCTAGCTACAACGA GCAGCCTC	15874
103	GCUGCACG A CACUCAUA	7126	TATGAGTG GGCTAGCTACAACGA CGTGCAGC	15875
101	UGCACGAC A CUCAUACU	7127	AGTATGAG GGCTAGCTACAACGA GTCGTGCA	15876
97	CGACACUC A UACUAACG	7128	CGTTAGTA GGCTAGCTACAACGA GAGTGTCG	15877
95	ACACUCAU A CUAACGCC	7129	GGCGTTAG GGCTAGCTACAACGA ATGAGTGT	15878
91	UCAUACUA A CGCCAUGG	7130	CCATGGCG GGCTAGCTACAACGA TAGTATGA	15879
89	AUACUAAC G CCAUGGCU	7131	AGCCATGG GGCTAGCTACAACGA GTTAGTAT	15880
86	CUAACGCC A UGGCUAGA	7132	TCTAGCCA GGCTAGCTACAACGA GGCGTTAG	15881
83	ACGCCAUG G CUAGACGC	7133	GCGTCTAG GGCTAGCTACAACGA CATGGCGT	15882
78	AUGGCUAG A CGCUUUCU	7134	AGAAAGCG GGCTAGCTACAACGA CTAGCCAT	15883
76	GGCUAGAC G CUUUCUGC	7135	GCAGAAAG GGCTAGCTACAACGA GTCTAGCC	15884
69	CGCUUUCU G CGUGAAGA	7136	TCTTCACG GGCTAGCTACAACGA AGAAAGCG	15885
67	CUUUCUGC G UGAAGACA	7137	TGTCTTCA GGCTAGCTACAACGA GCAGAAAG	15886
61	GCGUGAAG A CAGUAGUU	7138	AACTACTG GGCTAGCTACAACGA CTTCACGC	15887
58	UGAAGACA G UAGUUCCU	7139	AGGAACTA GGCTAGCTACAACGA TGTCTTCA	15888
55	AGACAGUA G UUCCUCAC	7140	GTGAGGAA GGCTAGCTACAACGA TACTGTCT	15889
48	AGUUCCUC A CAGGGGAG	7141	CTCCCCTG GGCTAGCTACAACGA GAGGAACT	15890
40	ACAGGGGA G UGAUCUAU	7142	ATAGATCA GGCTAGCTACAACGA TCCCCTGT	15891
37	GGGGAGUG A UCUAUGGU	7143	ACCATAGA GGCTAGCTACAACGA CACTCCCC	15892
33	AGUGAUCU A UGGUGGAG	7144	CTCCACCA GGCTAGCTACAACGA AGATCACT	15893
30	GAUCUAUG G UGGAGUGU	7145	ACACTCCA GGCTAGCTACAACGA CATAGATC	15894
25	AUGGUGGA G UGUCGCCC	7146	GGGCGACA GGCTAGCTACAACGA TCCACCAT	15895
23	GGUGGAGU G UCGCCCCC	7147	GGGGGCGA GGCTAGCTACAACGA ACTCCACC	15896
	<u> </u>	1		

Input Sequence = HPCK1S1. Cut Site = R/Y
Arm Length = 8. Core Sequence = GGCTAGCTACAACGA
HPCK1S1 Hepatitis C virus (strain HCV-1b, clone HCV-K1-S1), complete genome; acc#
gi|1030702|dbj|D50483.1; 9410 nt

Table XX: Synthetic anti-HCV nucleic acid molecule and Target Sequences

ref	Ref	Target	Seq	RPI#	NUCLEIC ACID	Sed	Nucleic Acid
bos	Seq		<u>'</u> A			Ġ	Alias
195	HCV+	GGGUCCU U UCUUGGA	7148	15364	с _в с _в а _s аа с <u>и</u> GAuGaggcgaaagccGaa Aggacc В	15897	Hammerhead
342	HCV+	AGACCGUGCAUCAUGAGCAC	7149	17501	Garscarscaarsgaarsgacaacagagarscar	15898	Antisense
195	HCV+	eggiccu u ucuuega	7148	17558	c _B c _B a _B ga c <u>U</u> GAuGaggcguuagccGaZ Aggacc B	15899	Hammerhead
195	HCV+	GGGUCCU U UCUUGGA	7148	17559	c _s c _s a _s ga c <u>u</u> GAuGaggcguuagccGaa AggaZc B	15900	Hammerhead
195	HCV+	geencen u ucungea	7148	17560	Z _S c _s a _s ga c <u>u</u> GAuGaggcguuagccGaa Aggacc B	15901	Hammerhead
195	HCV+	GGGUCCU U UCUUGGA	7148	17561	Z c _g a _g ga c <u>u</u> GAuGaggcguuagccGaa Aggacc B	15902	Hammerhead
195	HCV+	GGGUCCU U UCUUGGA	7148	18012	ccaaga cVGAuGaggcguuagccGaa Aggacc B	15903	Hammerhead
82	HCV+	gegueur g cerugge	7150	18744	gscscsagugg GccgaaagGCGaGucaaGGuCu uagacgc B	15904	Zinzyme
100	HCV+	D	7151	18745	cgagcgaca GccgaaagGCGaGucaaGGuCu ucauacu B	15905	Zinzyme
102	HCV+	UAUGAGU G UCGUGCA	7152	18746	uggscsagcgaaaggcGaGucaagGuCu acucaua B	15906	Zinzyme
105	HCV+	GAGUGUC G UGCAGCC	7153	18747	gggscguggaaagGCGaGucaaGGuCu gacacuc B	15907	Zinzyme
107	HCV+	GUGUCGU G CAGCCUC	7154	18748	g _a g _g g _s cug GccgaaagGCGaGucaaGGuCu acgacac B	15908	Zinzyme
146	HCV+	CAUAGUG G UCUGCGG	7155	18749	ടൂടുട്ടുട്ടു GccgaaagGCGaGucaaGGuCu cacuaug B	15909	Zinzyme
190	HCV+	ceaccee e uccumo	7156	18750	gaagaagccgaaagccGaGncaagGcucu ccggucg B	15910	Zinzyme
217	HCV+	GCUCAAU G CCUGGAG	7157	18751	ടൂപ _ട ടേ _ട മ്യ GccgaaagGCGaGucaaGGuCu auugagc B	15911	Zinzyme
231	HCV+	GAUTUGG G CGUGCCC	7158	18752	98989scacg GoogaaagGCGaGucaaGGuCu ccaaauc B	15912	Zinzyme
258	HCV+	UAGCCGA G UAGUGUU	7159	18753	agagcaa GccgaaagGCGaGucaaGGuCu ucggcua B	15913	Zinzyme
307	HCV+	GOUGCUU G CGAGUGC	7160	18754	gecsagcaco GccgaaagGCGaGucaaGGuCu aagcaco B	15914	Zinzyme
77	HCV+	GAAAGC G UCUAGC	7161	18755	ggcgugaggagaggGGgaGucaaGGuCu gcuuuc B	15915	Zinzyme
77	HCV+		7162	18756	9898csusaga GccgaaagGCGaGucaaGGuCu gcuuucu B	15916	Zinzyme
8.8	HCV+	ტ	7163	18757	agcsugasacg GccgaaagGCGaGucaaGGuCu cauggcu B	15917	Zinzyme
94	HCV+	GGCGUUA G UAUGAGU	7164	18758	agcsugciana GccgaaagGCGaGucaaGGuCu uaacgcc B	15918	Zinzyme
102	HCV+	AUGAGU G UCGUGC	7165	18759	g _g c _g a _{scg} ga GccgaaagGCGaGucaaGGuCu acucau B	15919	Zinzyme
105	HCV+		2166	18760	g _s c _g u _s g _s ca GccgaaagGCGaGucaaGGuCu gacacu B	15920	Zinzyme
110	HCV+	O	7167	18761	c _B u _B g _B agg GccgaaagGCGaGucaaGGuCu ugcacga B	15921	Zinzyme
137	HCV+	GGGAGA G CCAUAG	7168	18762	c _B u _B a _B u _B gg GccgaaagGCGaGucaaGGuCu ucuccc B	15922	Zinzyme
137	HCV+	ט	1169	18763	ascsusasugg GccgaaagGCGaGucaaGGuCu ucucccg B	15923	Zinzyme
146	HCV+		1170	18764	c _S g _S c _S a _S ga GccgaaagGCGaGucaaGGuCu cacuau B	15924	Zinzyme
150	HCV+	ტ	7171	18765	gggugugccg GccgaaagGCGaGucaaGGuCu agaccac B	15925	Zinzyme
176	HCV+	CGGAAUU G CCAGGAC	7172	18766	g _B u _B c _B c _B ugg GccgaaagGcGaGucaaGGuCu aauuccg B	15926	Zinzyme

GccgaaagGcGaGucaaGGuCu GccgaaagGcGaGucaaaGGuCu GccgaaagGcGaGucaaaGGuCu GccgaaagGcGaGucaaaGGuCu GccgaaagGcGaGucaaaGGuCu GccgaaagGcGaGucaaaGGuCu GccgaaagGcGaGucaaaGGuCu GccgaaagGcGaGucaaaGGuCu	_	GACCGG G UCCUUU	7173	18767	asagaga GccgaaagGCGaGucaaGGuCu ccgguc B	15927	Zinzyme
1175 18769		ပ	7174	18768	GccgaaagGCGaGucaaGGuCu uagcag	15928	Zinzyme
7176 18770 abc_aalc_au a GrogaaagGCGaGucaaGGucu acuacu B 7177 18771 18771 18771 18771 18772 18772 18772 18772 18772 18772 18772 18773 18772 18773 18773 18773 18773 18773 18773 18773 18773 18773 18774 18774 18775 18775 18775 18775 18775 18776 18776 18776 18776 18776 18777 18776 18776 18776 18776 18776 18777 18778 18777 18778 18778 18778 18778 18778 18778 18778 18778 18778 18778 18778 18778 18778 18778 18778	HCV+	೮	7175	18769	sascsuscog GccgaaagGCGaGucaaGGuCu uagcagu	15929	Zinzyme
1177 18771 18771 18771 18771 18772 1925.65.66.00 GCGGaaagGCGGaducaaGGuCu acuacac B 7778 18773 ug-69g-6gg GccgaaagGCGGaducaaGGuCu ccaacac B 17179 18773 ug-69g-6gg GccgaaagGCGaducaaGGuCu acacac B 7780 18774 cgcbugugag GccgaaagGCGaducaaGGuCu acacac B 17181 18775 ug-gg-gagag GccgaaagGCGaducaaGGuCu acacag B 7782 18777 ug-gg-gagag GccgaaagGCGaducaaGGuCu acacag B 17184 18778 ug-gg-gagag GccgaaagGCGaducaaGGuCu acacag B 7784 18778 ug-gg-gagag GccgaaagGCGaducaaGGuCu acuaca B 17184 18778 ug-gg-gagag GccgaaagGCGaducaaGGuCu acuaca B 77187 18781 ug-gg-gagag GccgaaagGCGaducaaGGuCu acuaca B 17184 18778 ug-gg-gagag GccgaaagGCGaducaaGGuCu acuaca B 77181 18782 ug-gag-gaga GccgaaagGCGaducaaGGuCu acuaca B 17184 18778 ug-gag-gaga GccgaaagGCGaducaaGGuCu acuaca B 71191 18783 ug-gag-gaga GccgaaagGCGaducaaGGuCu acuaca B 17184 18788 ag-gag-gaga GccgaaagGCGaducaaGGuCu acuaca B 71191 18784 cg-gag-gaga GccgaaagGCGaducaaGGuCu acaca B 7194 18788 ag-gag-g	-		7176	18770	GccgaaagGCGaGucaaGGuCu ucggcu	15930	Zinzyme
7178 18772 u _B Cggcggq GcggaagGGGgGucaaGGuCu ccaaca B 7179 18773 u _B u _B cggcgq GcggaagGGGGucaaGGuCu ccaaca B 7180 18774 C _B C _B u _B u _B cg GcggaagGCGGducaaGGuCu agcaca B 7181 18775 a _B g _B u _B c _B agga GcggaagGCGGucaaGGuCu agcaca B 7182 18776 g _B g _B c _B agga GcggaagGCGGacucaaGGuCu agcaca B 7184 18777 u _B c _B g _B agga GcggaagGCGGacucaaGGuCu aguaca B 7185 18770 u _B c _B g _B agga GcggaagGCGGacucaaGGuCu aguaca B 7186 18770 u _B c _B g _B g _B ga GcggaagGCGGacucaaGGuCu aguaca B 7187 1878 18783 u _B c _B g _B g _B ga GcggaagGCGGacucaaGGuCu aguaca B 7189 18783 u _B g _B g _B g _B ga GcggaagGCGaGucaaGGuCu aguagu B 7190 18784 c _B c _B g _B g _B ga GcggaagGCGaGucaaGGuCu aguagu B 7191 18785 c _B u _B g _B g _B ga GcggaagGCGaGucaaGGuCu aguagu B 7192 18786 u _B g _B g _B g _B ga GcggaagGCGaGucaaGGuCu aguagu B 7194 18788 a _B g _B g _B g _B g GcggaagGCGaGucaaGGuCu aguagu B 7195 18789 a _B g _B g _B g _B cgua GccgaaagGCGaGucaaGGuCu acuagu B 7196 18789 a	HCV+		7177	1877	GccgaaagGcGaGucaaGGuCu acuacuc	15931	Zinzyme
7179 18773 u _b u _b c _g c _g cga GccgaaagGCGaGucaaGGuCu caacaca B 7180 18774 c _c cu _b u _b u _c cg GccgaaagGCGaGucaaGGuCu aaggccu B 7181 18775 a _c gu _b u _c ca GccgaaagGCGaGucaaGGuCu acaagg B 7182 1877 u _c su _b u _c ca GccgaaagGCGaGucaaGGuCu acaagg B 7184 1877 u _c su _b c _g agg GccgaaagGCGaGucaaGGuCu acaagg B 7186 18778 u _c su _g c _g agg GccgaaagGCGaGucaaGGuCu aguaca B 7187 1878 1878 u _c su _g c _g ag GccgaaagGCGaGucaaGGuCu aguaca B 7188 1878 u _c su _g c _g ag GccgaaagGCGaGucaaGGuCu aguaca B 7189 1878 u _c su _g c _g ag GccgaaagGCGaGucaaGGuCu aguaca B 7190 1878 u _c su _g c _g a _g ag GccgaaagGCGaGucaaaGGuCu uuuccu B 7191 1878 u _c su _g c _g a _g ag GccgaaaagGCGaGucaaaGGuCu uuuccu B 7191 1878 u _c su _g c _g a _g ag GccgaaaagGCGaGucaaaGGuCu uuuccu B 7191 1878 a _c su _g c _g a _g ag GccgaaaagGCGaGucaaaGGuCu uacaca B 7191 1878 a _c su _g c _g a _g a G GccgaaaagGCGaGucaaaGGuCu uacaca B 7191 1878 a _c su _g c _g a _g a G GccgaaaagGCGaGucaaaGGuCu acaaca B 7194 1878 </td <td>HCV+</td> <td>D.</td> <td>1178</td> <td>18772</td> <td>GccgaaagGCGaGucaaGGuCu ccaaca</td> <td>15932</td> <td>Zinzyme</td>	HCV+	D.	1178	18772	GccgaaagGCGaGucaaGGuCu ccaaca	15932	Zinzyme
7180 18774 C ₆ C ₆ U ₈ U ₈ U ₆ UCG GCGgaaagGCGGGUCaaGGUCU Gaccage B 7181 18775 a ₆ G ₈ U ₈ B ₈ Cca GCCGgaaagGCGGGUCaaGGUCU aaggccu B 7182 18776 G ₆ G ₈ C ₈ B ₈ Gca GCCGgaaagGCGGGUCaaGGUCU aaggccu B 7184 18777 U ₆ C ₈ G ₈ C ₆ B ₈ GG GCCGgaaagGCGGGUCaaGGUCU aguacca B 7185 18778 U ₆ C ₈ G ₈ C ₆ B ₈ GG GCCGgaaagGCGGGUCaaGGUCU aguacca B 7186 18779 U ₆ G ₈ G ₈ C ₈ GG GCCGgaaagGCGGGUCaaGGUCU aguacca B 7187 1878 U ₆ G ₈ G ₈ C ₈ GG GCCGgaaagGCGGGUCaaGGUCU aguacca B 7189 18781 U ₆ G ₈ G ₈ C ₈ GG GCCGgaaagGCGGGUCaaGGUCU aguacca B 7180 18784 C ₆ U ₈ C ₈ G ₈ GG GCCGgaaaGCGGGUCaaGGUCU aguacca B 7180 18784 U ₈ G ₈ G ₈ G ₈ GG GCCGgaaaGCGGGUCaaGGGUCU augacca B 7191 18784 U ₈ G ₈ G ₈ G ₈ GG GCCGgaaaGCGGGGUCaaGGGUC augacca B <td></td> <td></td> <td>7179</td> <td>18773</td> <td>GccgaaagGCGaGucaaGGuCu ccaacac</td> <td>15933</td> <td>Zinzyme</td>			7179	18773	GccgaaagGCGaGucaaGGuCu ccaacac	15933	Zinzyme
7181 18775 aggaugagecoa decegaaagecoacacacacacacacacacacacacacacacacacaca	HCV+		7180	18774	gacccaa	15934	Zinzyme
1182 18776 9g9gcgagg GccgaaagGGGaGucaaGGuCu cacaagg B 7183 18777	HCV+	AGGCCUU G UGGUACU	7181	18775	aaggccu	15935	Zinzyme
7183 18777	HCV+	candene e nyaneca	71.82	18776	GccgaaagGCGaGucaaGGuCu cacaagg	15936	Zinzyme
7184 18778 9_sc_8a_sgca GccgaaagGCGaGucaaGGuCu ccuauca B 7185 18779	HCV+	UGGUACU G CCUGAUA	7183	18777	GccgaaagGCGaGucaaGGuCu aguacca	15937	Zinzyme
7.185 18779 ugcggacgaag GcggaaagGGGaGucaaGGuCu aguagu B 7186 18780 ugcggagaga GcggaaagGCGaGucaaGGuCu aguagu B 7187 18781 gauggagaga GccgaaagGCGaGucaaGGuCu aguagu B 7188 18782 caugugaga GccgaaagGCGaGucaaGGuCu uuucug B 7189 18784 cacaaagacgagagaagGCGaGucaaGGuCu uuucug B 7190 18784 cacaaagacgaaagGCGaGucaaGGuCu uuucug B 7191 18785 caugaagagagagagagagagagagaaagGCGaGucaaGGuCu uuucug B 7192 18786 ugaagagagagagagagGCGaGucaaGGuCu uuucug B 7193 18787 agugagagaagGCGaGucaaaGGuCu uuucug B 7194 18788 agugagagaagGCGaGucaaaGGuCu uuucug B 7195 18789 agugagagaagGCGaGucaaaGGuCu uacuca B 7196 18789 agugagagagagagGCGaGucaaaGGuCu acuaga B 7197 18790 ugagagagagagagagagagagagagagagagagagaga		UGAUAGG G UGCUUGC	7184	18778	GccgaaagGCGaGucaaGGuCu ccuauca	15938	Zinzyme
7186 18780	HCV+		7185	18779	GccgaaagGCGaGucaaGGuCu acccuau	15939	Zinzyme
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7188 18782 C _B u _B u _B u _B cug GccgaaagGCGaGucaaGGuCu uuucug B 7189 18783 u _B a _B g _B a _B cg GccgaaagGCGaGucaaGGuCu uuucug B 7190 18784 C _B C _B a _B u _B gg GccgaaagGCGaGucaaGGuCu uuucug B 7191 18785 C _B u _B a _B cg GccgaaagGCGaGucaaGGuCu uuagacg B 7192 18786 u _B a _B c _B ua GccgaaagGCGaGucaaGGuCu uagacg B 7193 18787 a _B u _B a _B c _B ua GccgaaagGCGaGucaaGGuCu ucaugg B 7194 18788 a _B C _B G _B a _B ca GccgaaagGCGaGucaaGGuCu ucaucg B 7195 18789 a _B G _B G _B a _B g GccgaaagGCGaGucaaGGuCu ucaucg B 7196 18790 u _B G _B G _B a _B g GccgaaagGCGaGucaaGGuCu acuacg B 7197 18791 G _B U _B a _B c _B uc GccgaaagGCGaGucaaGGuCu auuca B 7200 18794 u _B C _B C _B a _B g GccgaaagGCGaGucaaGGuCu auuca B 7201 18795 G _B G _B a _B g GccgaaagGCGaGucaaGGuCu auuca B 7201 18796 C _B C _B a _B g GccgaaagGCGaGucaaGGuCu auucag B 7202 18796 C _B C _B a _B g Gc GcgaaagGCGaGucaaaGGuCu auucag B 7203 18796 C _B C _B a _B g Gc GcgaaagGCGaGucaaaGGuCu auucag B 7204 18798 C _B C _B a _B g aca Gccgaa			7187	18781	GccgaaagGCGaGucaaGGuCu aguaguu	15941	Zinzyme
7189 18783 ugagagagg GccgaaagGCGaGucaaGGuCu uuucug B 7190 18784 cgcgagagGcGaGucaaGGuCu uuagacg B 7191 18785 cguagagGcGaaagGCGaGucaaGGuCu uagacg B 7192 18786 ugagcguaa GccgaaagGCGaGucaaGGuCu cauggc B 7193 18787 aguagagaaa GccgaaagGCGaGucaaGGuCu uagaca B 7194 18788 agcggacua GccgaaagGCGaGucaaGGuCu ucauac B 7195 18789 agggacua GccgaaagGCGaGucaaGGuCu ucauac B 7196 18790 ugagagacua GccgaaagGCGaGucaaGGuCu ugaaca B 7197 18791 gguagacaagGCGaGucaaGGuCu uagaca B 7200 18794 ugcgcaugg GccgaaagGCGaGucaaGGuCu uuucac B 7201 18795 guagacaagGCGaGucaaGGuCu auugag B 7201 18794 ugcgcaaggGcGaGucaaagGCGaGucaaaGGuCu auugag B 7201 18795 gagagaca GccgaaaagGCGaGucaaaGGuCu auugag B 7201 18796 cgcaaagG GccgaaaagGCGaGucaaaGGuCu auugag B 7202 18796 cgcaaaagG GcgaaaagGCGaGucaaaGGuCu auugag B 7203 18797 cgcaaaag GcgaaaagGCGaGucaaagGuCu auugag B 7204 18798 cgcaaaag GcgaaaagGCGaGucaaagGuCu	HCV+		7188	18782	GccgaaagGCGaGucaaGGuCu gugaaga	15942	Zinzyme
7190 18784 C ₅ C ₅ B ₃ C ₈ GG GCGgaaagGCGaGucaaGGuCu uagacg B 7191 18785 C ₅ U ₈ B ₃ B ₅ CG GCCGaaagGCGaGucaaGGuCu cauggC B 7192 18786 U ₈ B ₂ C ₈ Uaa GCCGaaagGCGaGucaaGGuCu gccaug B 7193 18787 a ₅ U ₈ B ₆ C ₈ Uaa GCCGaaaagGCGaGucaaGGuCu ucauac B 7194 18788 a ₅ C ₅ G ₈ B ₆ C ₈ Ug GCCGaaaagGCGaGucaaGGuCu ucauac B 7195 18789 a ₅ G ₅ G ₈ C ₈ Ug GCCGaaaagGCGGGUCaaGGuCu acgaca B 7196 18790 U ₅ G ₅ G ₈ C ₈ Ug GCCGaaaagGCGGGUCu acgaca B 7197 18791 G ₅ U ₈ B ₆ C ₈ Uca GCCGaaaagGCGGGUCa acuucc B 7198 18792 U ₈ C ₅ C ₅ C ₈ B ₆ G 7200 18794 U ₈ C ₅ C ₅ C ₈ B ₆ G 7201 18795 U ₈ C ₅ C ₅ C ₈ B ₆ G 7202 18796 C ₅ C ₈ B ₈ B ₆ Ca GCCGaaaaGGCGaGucaaGGuCu uacucg B 7203 18797 C ₅ C ₅ B ₈ B ₈ Ca GCCGaaaaGGCGaGucaaGGuCu uacucg B 7204 18796 C ₅ C ₅ B ₈ B ₈ Ca GCCGaaaaGGCGGGUCaaaGGuCu acaca B 7206 18799 C ₅ C ₅ B ₈ B ₈ Ca GCCGaaaaGGCGGGUCaaaGGUCu acaca GCCGBCCaaCaaCGCGCGCCCCCCCCCCCCCCCCCCCC		ტ	7189	18783	GccgaaagGCGaGucaaGGuCu uuucug	15943	Zinzyme
7191 18785 C ₆ u ₈ a ₈ a ₈ cg GccgaaagGCGaGucaaGGuCu cauggc B 7192 18786 u ₈ a ₈ c ₈ uaa GccgaaagGCGaGucaaGGuCu gccaug B 7194 18788 a ₈ c ₈ ga ₈ ca GccgaaagGCGaGucaaGGuCu gccaugg B 7194 18788 a ₈ c ₈ ga ₈ ca GccgaaagGCGaGucaaGGuCu ucauac B 7195 18789 a ₈ g ₈ ga ₈ ca GccgaaagGCGaGucaaGGuCu ucauac B 7196 18790 u ₈ g ₈ ga ₈ gg GccgaaagGCGaGucaaGGuCu agacca B 7197 18791 g ₈ u ₈ u ₈ c ₈ cg GccgaaagGCGaGucaaGGuCu agacca B 7198 18792 g ₈ u ₈ a ₈ c ₈ uca GccgaaagGCGaGucaaGGuCu agacca B 7200 18794 u ₈ c ₈ c ₈ ug GccgaaagGCGaGucaaGGuCu auugcg B 7201 18795 g ₈ g ₈ c ₈ a ₈ g GccgaaagGCGaGucaaGGuCu auugcg B 7202 18796 c ₈ c ₈ a ₈ g GccgaaagGCGaGucaaGGuCu acucg B 7204 18797 c ₈ c ₈ c ₈ a ₈ ca GccgaaagGCGaGucaaGGuCu acucgg B 7204 18798 a ₈ c ₈ c ₈ ca GccgaaagGCGaGucaaGGuCu acucgg B 7205 18796 c ₈ c ₈ c ₈ a ₈ ca GccgaaagGCGaGucaaGGuCu acuccg B 7206 188797 c ₈ c ₈ c ₈ a ₈ ca GccgaaagGCGaGucaaGGuCu acuccu B 7207 18890 g ₈ u ₈ a ₈ c ₈ ca GccgaaagGCGaGucaaGGuCu aaggcc B 7207 18801 a ₈ u ₈ c ₈ ca GccgaaagGCGaGucaaGGuCu aaggcc B		ט	7190	18784	GccgaaagGCGaGucaaGGuCu uagacg	15944	Zinzyme
7192 18786 ugagcguaag GcgaaagGCGaGucaaGGuCu gccaug B 7193 18787 agugagcguaagGCGaGucaaGGuCu gccaugg B 7194 18788 ascagagcaagGCGaGucaaGGuCu ucauac B 7195 18789 asgagacagGCGaGucaaGGuCu ucauac B 7196 18790 usgagaagGCGaGucaaGGuCu ucaac B 7197 18791 gguagcagGCGaGucaaGGuCu ucaac B 7198 18792 gguagcagGCGaGucaaGGuCu aguucc B 7200 18794 uscscsusgg GccgaaagGCGaGucaaGGuCu auugag B 7201 18795 gsgicsaagG GccgaaagGCGaGucaaGGuCu auugag B 7201 18796 cscsaaga GccgaaagGCGaGucaaaGGuCu auugag B 7201 18796 cscsaaga GccgaaagGCGaGucaaaGGuCu acuac B 7203 18797 cscsaagac GccgaaaagGCGaGucaaaGGuCu acuacu B 7204 18798 ascscsaagaca GccgaaaagGCGaGucaaaGGuCu acuacu B 7204 18798 ascscsaagaca GccgaaaagGCGaGucaaaGGuCu acuacu B 7205 18799 csusuusca GccgaaaagGCGaGucaaaGGuCu acuacu B 7204 18798 ascscsaaa GccgaaaagGCGaGucaaaGGuCu acaacu B 7205 18800 gsusuusca GccgaaaagGCGaGucaaaGGuCu acaacu B <td></td> <td></td> <td>7191</td> <td>18785</td> <td>GccgaaagGCGaGucaaGGuCu cauggc</td> <td>15945</td> <td>Zinzyme</td>			7191	18785	GccgaaagGCGaGucaaGGuCu cauggc	15945	Zinzyme
7193 18787 asubabcsuaa GccgaaagGCGaGucaaGGuCu gccaugg B 7194 18788 ascggaacg GccgaaagGCGaGucaaGGuCu ucauac B 7195 18789 asggagcagG GccgaaagGCGaGucaaGGuCu acgaca B 7196 18790 usggagagg GccgaaagGCGaGucaaGGuCu acgaca B 7197 18791 gbugugcgcgaagGCGaGucaaGGuCu acgaca B 7198 18792 gsugagcguca GccgaaagGCGaGucaaGGuCu acuacc B 7200 18794 uscscsaagG GccgaaagGCGaGucaaGGuCu acuacc B 7201 18795 gsgicsagg GccgaaagGCGaGucaaGGuCu acuacg B 7202 18796 cscsaaga GccgaaagGCGaGucaaaGGuCu acuacg B 7204 18797 cscsaagaca GccgaaagGCGaGucaaaGGuCu acuacu B 7204 18798 ascscsaagaca GccgaaagGCGaGucaaaGGuCu acuacu B 7205 18796 cscsaagaca GccgaaaagGCGaGucaaaGGuCu acuacu B 7204 18798 ascscsaaa GccgaaaagGCGaGucaaaGGuCu acuacu B 7205 18799 csusususcgaaagGcGaGacaaagGCCaacaagGuCu acuacu B 7206 18800 gsusususcgaaagGcGaGucaaaGGuCu acuacu B 7207 18801 gsusususcgaaagGcGaGucaaagGuCu acuacu B 7207 18801 <		CAUGGC G UUAGUA	7192	18786	GccgaaagGCGaGucaaGGuCu gccaug	15946	Zinzyme
7194 18788 ascsgaasca GccgaaagGCGaGucaaGGuCu ucauac B 7195 18789 asggascsug GccgaaagGCGaGucaaGGuCu ucauac B 7196 18790 usgsgascgug GccgaaagGCGaGucaaGGuCu ugcacg B 7197 18791 gsusacsuca GccgaaagGCGaGucaaGGuCu ugcacg B 7198 18792 gsusacsuca GccgaaagGCGaGucaaGGuCu agucc B 7199 18793 uscscsusgg GccgaaagGCGaGucaaGGuCu auuucc B 7200 18794 uscscsasgg GccgaaagGCGaGucaaGGuCu auugag B 7201 18795 gsgscsascg GccgaaagGCGaGucaaGGuCu uacucg B 7202 18796 cscsaagac GccgaaagGCGaGucaaaGGuCu uacucg B 7204 18797 cscsaagac GccgaaagGCGaGucaaaGGuCu uacucg B 7204 18798 ascscsaag GccgaaagGCGaGucaaaGGuCu uacucg B 7204 18798 ascscsaa GccgaaagGCGaGucaaaGGuCu acuccu B 7204 18798 ascscsaa GccgaaagGCGaGucaaaGGuCu acuccu B 7204 18800 gsusususca GccgaaagGCGaGucaaaGGuCu acuccu B 7205 18800 gsusususca GccgaaaagGCGaGucaaaGGuCu aaggcc B 7207 18801 asuscsaagGccgaaaagGCGaGucaaagGuCu aaggcc B 7207 18801		CCAUGGC G UNAGUAU	7193	18787	gugagcguaa GccgaaagGCGaGucaaGGuCu gccaugg	15947	Zinzyme
7195 18789 a_g9g_gc_gug GccgaaagGCGaGucaaGGuCu acgaca B 7196 18790 u_g9g_ga_ggg GccgaaagGCGaGucaaGGuCu ugcacg B 7197 18791 ggugagc_gug GccgaaagGCGaGucaaGGuCu agacca B 7198 18792 gugc_gc_gugg GccgaaagGCGaGucaaGGuCu aguucc B 7200 18794 u_gc_gc_gagg GccgaaagGCGaGucaaGGuCu auugag B 7201 18795 g_ggigc_ga_gcg GccgaaagGCGaGucaaGGuCu auugag B 7201 18796 c_gc_ga_ga GccgaaagGCGaGucaaGGuCu uacucg B 7203 18797 c_gc_ga_gac GccgaaagGCGaGucaaGGuCu uacucg B 7204 18798 agc_gc_gaa GccgaaagGCGaGucaaGGuCu uacucg B 7204 18798 agc_gc_gaa GccgaaagGCGaGucaaGGuCu acuacu B 7205 18798 agc_gc_gaa GccgaaagGCGaGucaaGGuCu acuacu B 7204 18798 agc_gc_gaa GccgaaagGCGaGucaaGGuCu acuacu B 7205 18800 ggu_gaagGCGagucaagGuCu acuacu B		GUAUGA G UGUCGU	7194	18788	GccgaaagGCGaGucaaGGuCu ucauac	15948	Zinzyme
7196 18790 usgsgaagg GccgaaagGCGaGucaaGGuCu ugcacg B 7197 18791 gsusacsocg GccgaaagGCGaGucaaGGuCu agacca B 7198 18792 gsusacsuca GccgaaagGCGaGucaaGGuCu agacca B 7199 18793 uscscsusgg GccgaaagGCGaGucaaGGuCu aauucc B 7200 18794 uscscsusgg GccgaaagGCGaGucaaGGuCu auugag B 7201 18795 gsgicsascg GccgaaagGCGaGucaaGGuCu auugag B 7201 18796 cscsaasaca GccgaaagGCGaGucaaGGuCu uacucg B 7203 18797 cscscsaaca GccgaaagGCGaGucaaaGGuCu uacucg B 7204 18798 ascscsaaa GccgaaagGCGaGucaaaGGuCu acuacu B 7205 18799 csusususcgaaagGCGaGucaaaGGuCu acuacu B 7206 18800 gsusascca GccgaaagGCGaGucaaaGGuCu acuacu B 7207 18801 asuscaacgccaaagGCGaGucaaagGuCu aaaggcc B			7195	18789	GccgaaagGCGaGucaaGGuCu acgaca	15949	Zinzyme
7197 18791 ggugugugcgggGgaaagGCGaGucaaGGuCu agacca B 7198 18792 ggugagcguca GccgaaagGCGaGucaaGGuCu cgguucc B 7199 18793 ugcgcgaagGCGaGucaaGGuCu aauucc B 7200 18794 ugcgcgaagGCGaGucaaGGuCu auugag B 7201 18795 gggicgagg GccgaaagGCGaGucaaGGuCu auugag B 7202 18796 cgcgaaagGCGaGucaaGGuCu acuacg B 7203 18797 cgcgaaagGCGaGucaaGGuCu uacucg B 7204 18798 agcgcaaagGCGaGucaaGGuCu acuacu B 7205 18799 cguguagCgaaagGCGaGucaaGGuCu acuacu B 7205 18799 cguguagcGaaagGCGaGucaaGGuCu acuacu B 7205 18800 gsugagcgaaagGCGaGucaaaGGuCu acuacu B 7206 18800 gsugagcgaaagGCGaGucaaaGGuCu aaaggcc B 7207 18801 agugcaaagGCGaacaaagGCGaGucaaagGuCu aaaggcc B			7196	18790	GccgaaagGCGaGucaaGGuCu ugcacg	15950	Zinzyme
7198 18792 gsugagcsuca GccgaaagGCGaGucaaGGuCu cgguucc B 7199 18793 ugcgcgugg GccgaaagGCGaGucaaGGuCu aauucc B 7200 18794 ugcgcgaagGCGaGucaaGGuCu auugag B 7201 18795 gsggcgaagGCGaGucaaGGuCu auugag B 7202 18796 cgcgaaagGCGaGucaaGGuCu aacucg B 7203 18797 cgcgaaagGCGaGucaaGGuCu uacucg B 7204 18798 agcgcgaaagGCGaGucaaGGuCu acuacu B 7205 18799 cgusugugcgaaagGCGaGucaaGGuCu acuacu B 7206 18800 gsugagcgaaagGCGaGucaaGGuCu aaggcc B 7207 18801 aguccaaggc GcgaaagGCGaGucaaagGuCu aaggcc B 7207 18801 aguccaagg GccgaaagGCGaGucaaagGuCu aaggcc B		UGGUCU G CGGAAC	7137	18791	GccgaaagGCGaGucaaGGuCu agacca	15951	Zinzyme
7199 18793 uscscsusgg GccgaaagGCGaGucaaGGuCu aauucc B 7200 18794 uscscsagg GccgaaagGCGaGucaaGGuCu auugag B 7201 18795 gsgscsascg GccgaaagGCGaGucaaGGuCu caaau B 7202 18796 cscsaasag GccgaaagGCGaGucaaGGuCu uacucg B 7203 18797 cscscaaga GccgaaagGCGaGucaaGGuCu uacucgg B 7204 18798 ascscsaa GccgaaagGCGaGucaaGGuCu acuacu B 7205 18799 csusususcgaagGCGaGucaaGGuCu acuacu B 7206 18800 gsusascsaaGGCGaGucaaGGuCu aaggcc B 7207 18801 asuscsaagGCGaaaagGCGaGucaaaGGuCu aaggcc B	. 1	GGAACCG G UGAGUAC	7198	18792	Bugagcguca GccgaaagGCGaGucaaGGuCu cgguucc	15952	Zinzyme
7200 18794 ugcgcgaaggg GccgaaagGCGaGucaaGGuCu auugag B 7201 18795 ggggcgaagG GccgaaagGCGaGucaaGGuCu ccaaau B 7202 18796 cgcgaaagGCGaGucaaGGuCu uacucg B 7203 18797 cgcgaaagGCGaGucaaGGuCu uacucgg B 7204 18798 agcgcgaaagGCGaGucaaGGuCu acuacu B 7205 18799 cguguagcgGGaGaGaGaGaGucaaGGuCu acuacu B 7205 18800 ggugagcgaagGCGaGucaaGGuCu acuacu B 7207 18801 gaugcgca GccgaaagGCGaGucaaGGuCu aaggcc B 7207 18801 agugcgaagGCGaGucaaGGuCu aaggcc B		ტ	7199	18793	GccgaaagGCGaGucaaGGuCu aauucc	15953	Zinzyme
7201 18795 ggg.cga.cg GccgaaagGCGaGucaaGGuCu ccaaau B 7202 18796 cg.cgaag.ca GccgaaagGCGaGucaaGGuCu uacucg B 7203 18797 cg.cgaaagGCGaGucaaGGuCu uacucg B 7204 18798 agc.gc.gaa GccgaaagGCGaGucaaGGuCu acuacu B 7205 18799 cgugug.cg GccgaaagGCGaGucaaGGuCu gaccca B 7206 18800 gguga.gc GccgaaagGCGaGucaaGGuCu aaggcc B 7207 18801 agugc.ga.gg GccgaaagGCGaGucaaGGuCu aagacc B		D	7200	18794	GccgaaagGCGaGucaaGGuCu auugag	15954	Zinzyme
7202 18796 c _g c _g agagca GccgaaagGCGaGucaagGuCu uacucg B 7203 18797 c _g c _g c _g agaca GccgaaagGCGaGucaaGGuCu uacucgg B 7204 18798 a _g c _g c _g aa GccgaaagGCGaGucaaGGuCu acuacu B 7205 18799 c _g ugugugcg GccgaaagGCGaGucaaGGuCu gaccca B 7206 18800 g _g ugagcg GccgaaagGCGaGucaaGGuCu aaggcc B 7207 18801 a _g ugc _g ag GccgaaagGCGaGucaaGGuCu aaggcc B		AUTUGG G CGUGCC	7201	18795	GccgaaagGCGaGucaaGGuCu ccaaau	15955	Zinzyme
7203 18797 C _B C _B C _B agaca GccgaaagGCGaGucaaGGuCu uacucgg B 7204 18798 a _B C _B C _B aa GccgaaagGCGaGucaaGGuCu acuacu B 7205 18799 C _B u _B u _B cg GccgaaagGCGaGucaaGGuCu gaccca B 7206 18800 g _S u _B a _B C _B ca GccgaaagGCGaGucaaGGuCu aaggcc B 7207 18801 a _B u _B C _B agG GccgaaagGCGaGucaaGGuCu aquacc B		CGAGUA G UGUUGG	7202	18796	GccgaaagGCGaGucaaGGuCu uacucg	15956	Zinzyme
7204 18798 a _S c _S c _S c _S aa GccgaaagGcGaGucaaGGuCu acuacu B 7205 18799 c _S u _S u _S u _S cg GccgaaagGcGaGucaaGGuCu gaccca B 7206 18800 g _S u _S a _S c _S ca GccgaaagGcGaGucaaGGuCu aaggcc B 7207 18801 a _S u _S c _S a _S G GccgaaagGcGaGucaaGGuCu aquacc B		CCGAGUA G UGUUGGG	7203	18797	GccgaaagGCGaGucaaGGuCu uacucgg	15957	Zinzyme
G CGAAAG 7205 18799 c _g u _g u _g cg GccgaaagGCGaGucaaGGuCu gaccca B G UGGUAC 7206 18800 g _g u _g a _g ca GccgaaagGCGaGucaaGGuCu aaggcc B G CCUGAU 7207 18801 a _g u _g c _a ag GccgaaagGCGaGucaaGGuCu aquacc B		AGUAGU G UUGGGU	7204	18798	SCBCBCBaa GccgaaagGCGaGucaaGGuCu acuacu	15958	Zinzyme
G UGGUAC 7206 18800 9 _S u _g a _g ca GccgaaagGCGaGucaaGGuCu aaggcc B G CCUGAU 7207 18801 a _g u _g c _g a _g g GccgaaagGCGaGucaaGGuCu aquacc B		UGGGUC G CGAAAG	7205	18799	GccgaaagGCGaGucaaGGuCu gaccca	15959	Zinzyme
G CCUGAU 7207 18801 a _B u _{Cca} a _e gg GccgaaagGCGaGucaagGuCu aquacc B		eeccuu e ueeuac	7206	18800	GccgaaagGCGaGucaaGGuCu aaggcc	15960	Zinzyme
1		ပ	7207	18801	agug CsaaaagGCGaGucaaGGuCu aguacc B	15961	Zinzyme

303	HCV+	UAGGGU G CUUGCG	7208	18802	Cagacaaag GccgaaagGCGaGucaaGGuCu acccua B	15962	Zinzyme
307	HCV+	Ö	7209	18803	ŀ	15963	Zinzyme
323	+AOH	CGGGAG G UCUCGU	7210	18804	ascagaaagGCGaGucaaGGuCu cucccg B	15964	Zinzyme
323	+ADH	២	7211	18805	ugagcgaaaagGCGaGucaaGGuCu cucccgg B	15965	Zinzyme
75	HCV+	២	7212	18806	c _B ugaggacg GccgaaagGCGaGucaaGGuCu uuucugc B	15966	Zinzyme
143	HCV+	GCCAUA G UGGUCU	7213	18807	agggag GccgaaagGCGaGucaaGGuCu uauggc B	15967	Zinzyme
278	+CA+	GCGAAAG G CCUUGUG	7214	18808	cgagcgagagagagagagagagagagagagagagagaga	15968	Zinzyme
163	HCV+	CGGUGA G VACACC	7215	18809	gsgauggena GccgaaagGCGaGucaaGGuCu ucaccg B	15969	Zinzyme
68	+CO+	CUUCAC G CAGAAA	7216	18810	usugugcsug GccgaaagGCGaGucaaGGuCu gugaag B	15970	Zinzyme
94	HCV+	GCGUUA G UAUGAG	7217	1881	CBugcgag GccgaaagGCGaGucaaGGuCu uaacgc B	15971	Zinzyme
143	HCV+	AGCCAUA G UGGUCUG	7218	18812	c _B a _B g _B a _B cca GccgaaagGCGaGucaaGGuCu uauggcu B	15972	Zinzyme
159	HCV+	D.	7219	18813	ugagcaucaagGCGaGucaaGGuCu cgguuc B	15973	Zinzyme
163	HCV+	ซ	7220	18814	csgsguagua GccgaaagGCGaGucaaGGuCu ucaccgg B	15974	Zinzyme
249	HCV+	GAGACU G CUAGCC	7221	18815	gsgscsugag GccgaaagGCGaGucaaGGuCu agucuc B	15975	Zinzyme
249	HCV+	ย	7222	18816	csgsgscsuag GccgaaagGCGaGucaaGGuCu agucucg B	15976	Zinzyme
278	HCV+	ტ	7223	18817	ascsagg GccgaaagGCGaGucaaGGuCu cuuucg B	15977	Zinzyme
286	HCV+	cousing a vacose	7224	18818	gscsaggua GccgaaagGcGaGucaaGGuCu cacaag B	15978	Zinzyme
301	HCV+	GAUAGG G UGCUUG	7225	18819	csasaggca GccgaaagGCGaGucaaGGuCu ccuauc B	15979	Zinzyme
328	HCV+	GGUCUC G UAGACC	7226	18820	gsgsuscaua GccgaaagGCGaGucaaGGuCu gagacc B	15980	Zinzyme
328	HCV+	AGGUCUC G UAGACCG	7227	18851	cggggugcua GccgaaagGCGaGucaaGGuCu gagaccu B	15981	Zinzyme
335	HCV+	UAGACC G UGCACC	7228	18822	ggguegca GccgaaagGCGaGucaaGGuCu ggucua B	15982	Zinzyme
30	ບ	UAAACCU C AAAGAAA	7229	19108	usususcsunu cuGAuGaggccgunaggccGaa Aggunua B	15983	Hammerhead
48	ບ	CAAACGU A ACACCAA	7230	19109	ususgsgugu cuGAuGaggccguuaggccGaa Acguuug B	15984	Hammerhead
09	ບ	CAACCGU C GCCCACA	7231	19110	usgsusgc cuGAuGaggccguuaggccGaa Acgguug B	15985	Hammerhead
175	υ	GAGCGGU C ACAACCU	7232	19111	asgsgusugu cuGAuGaggccguuaggccGaa Accgcuc B	15986	Hammerhead
374	υ	GUAAGGU C AUCGAUA	7233	19112	usasuscagan cuGAuGaggccgunaggccGaa Accuuac B	15987	Hammerhead
258	S27	UGGUGGCUCCAUCUUAGCCCUAG	7234	22022	58g8n8a8a8a8a8a8a8a8a8a8a8a8a8a8a8a8a8a8a	15988	Antisense
259	S27	gengecuccaucunagecenagu	7235	22023	gegnacescare care as a sage sugas su	15989	Antisense
260	827	guescuccaucunascccuasuc	7236	22024	genegascauscas agus caus as agascacaus agasus o	15990	Antisense
261	S27	UGGCUCCAUCUUAGCCCUAGUCA	7237	22025	nggggggggggggggggggggggggggggggggggggg	15991	Antisense
262	827	GGCUCCAUCUTAGCCCUAGUCAC	7238	22026	gegoeneosceaugueneugesceceusceusceauscea	15992	Antisense
263	S27	GCUCCAUCUUAGCCCUAGUCACG	7239	22027	6 ⁸ 25 ⁸ 0	15993	Antisense
264	S27	CUCCAUCUUAGCCCUAGUCACGG	7240	22028	656559e855RB5585858580858080858085858085	15994	Antisense
265	S27	UCCAUCUUAGCCCUAGUCACGGC	7241	22029	nscscsagnscsnsusgscscsusasgsnsuscsagscsgsc	15995	Antisense
266	827	ccaucunagcccuagucacggcu	7242	22030	CBCsagusCsusasgsCgCsusasggusCsagCgggggu	15996	Antisense

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7245 22033 u.c.sususasq.c.c.c.u.a.a.q.u.c.a.c.a.c.a.c.a.c.a.c.a.c.a.c.a.c.a.c
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C _S u _S u _S a _B g _B c _B u _B a _B g _B u _B c _B a _B c _B u _B u _B a _B g _B c _B u
^{ugugggggggggggggggggggggggggggggggggg}
nggangogegegegegegegegegegegegegegegegegegeg
asgecscsusasgsuscsasgscsusasgscsusasgscsusgsusg
22038 g _{Gg} c _g c _{gugaggug} c _{gag} c _{gggggugaggggugggugg}
22039 cgcgcgugaggugcgagcgggggcgugaggcgugg
22040 cecsusasgauscaascsgagscsusasgscausgsa
22041 csusasgsuscsascsgscsusasgscsusgsusgsasa
22042 usasgauscaascagascausaagacauagauagaaga
22043 asg _{sus} c _s a _s c _s g _s g _s c _{sus} a _s g _s g _{sus} a _s a _s a _s a _s
22044 g _g usc _s asc _s g _s g _s c _s u _s a _s g _s c _s u _s g _s u _s g _s a _s a _s a _s g _s g _s u _s c
22045 uscsascagassusasgscauagauagaaaaagagauscsc
22046 c _g agc _g ggc _g ugaggc _g uggguggagaggggggggggggggggggggggggggg
22047 agcggggggggggggggggggggggggggggggggggg
22048 csgsgscsusgscsusgsusgsasgsgsgsusgsusgs
22049 gsgscsusaggcsusggusgsasasaggguscscsgsusgsa
22050 g _{GCs} ugaggc _g ugg _B u _s ggagaggggggugggggggggggggggggggggggggg
22051 c _e u _s a _s g _s c _e u _s g _s u _s g _s a _s a _s a _s g _s g _s u _s c _s c _s g _s u _s g _s a _s g
22052 g _B c _B a _B u _B g _B a _B c _B u _B g _B a _B g _B a _B ga _B ga _B a _B u
22053 c _B a _B u _B g _B a _B c _S u _B g _B c _B a _B g _B a _B g _B a _B u _B g
22054 asusgaacsusgacsasgaasgausgacsusgaasusaac
22055 ugggagcguggscgaggaggaugggcgugggagugg
22056 g _{sag} c _{sus} g _s c _{saggsaggsaggsusgsc_{sus}g_{sagus}g_{sus}g}
22057 agcgugggcgaggaggaggugggcgugggagugagcguggg
22058 c _s usgsc _s a _g g _{aggaggaug} g _{gugggaguggagggggggggg}
22059 ugggcgaggaggaggaggcgugggagugagcgugggggg
22060 g ₆ C ₆ a ₆ g ₈ a ₈ g ₈ a ₈ g ₈ u ₈ g ₆ c ₈ u ₈ g ₈ a ₈ c ₈ u ₈ g ₈ g ₈ c ₈ c ₈ u
22061 caaggaaggauggcgugggagugagcguggggcgcgugc
22062 asgaasgausgscsusgaausascsusgagcsuscsu
22063 gsasgsusgscausgsagusascsusgsgscscsusc
22524 cgugcgagcc
22525 u _B u _B c _B c

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Inozyme	Inozyme	Inozyme	Inozyme	Inozyme	Inozyme	Inozyme	Inozyme	Inozyme	Inozyme	Inozyme	Inozyme	Inozyme	Inozyme	Inozyme	Amberzyme	Amberzyme	Amberzyme	Amberzyme	Amberzyme	Amberzyme	Amberzyme	Amberzyme	Amberzyme	Amberzyme	Amberzyme	Amberzyme	Amberzyme	Amberzyme	Zinzyme	Zinzyme	Zinzyme	Zinzyme	Zinzyme	Zinzyme
16032	16033	16034	16035	16036	16037	16038	16039	16040	16041	16042	16043	16044	16045	16046	16047	16048	16049	16050	16051	16052	16053	16054	16055	16056	16057	16058	16059	16060	16061	16062	16063	16064	16065	16066
c _B a _B c _B u _B au c <u>U</u> GAuGaggccguuaggccGaa Icucuc B	c _B c _B a _B c _B ua cVGAuGaggccguuaggccGaa Igcucu B	agcgcgaa cuGAuGaggccguuaggccGaa Igccuu B	uscsuscsc cuGAuGaggccguuaggccGaa Igaggg B	c _g c _g a _g c _g aa c <u>u</u> GAuGaggccguuaggccGaa Iccuuu B	ususcscggc cuGAuGaggccguuaggccGaa Iaccac B	c _B aga _B gaa c <u>u</u> GAuGaggccguuaggccGaa Igaccc B	c _s u _g a _g c _s uc c <u>u</u> GAuGaggccguuaggccGaa Icuagc B	C _S c _g u _{sag} uc c <u>u</u> GAuGaggccguuaggccGaa Igcagu B	с _в ивавивса с <u>и</u> блибадуссупиадуссваа Ісадиа В	uscsaggc cuGAuGaggccgunaggccGaa Iuacca B	asaguguc cudhudaggccguuaggccGaa Iuguac B	c _s c _s u _s a _s uca c <u>u</u> GAuGaggccguuaggccGaa Icaguac B	c _s c _s c _s u _s auc c <u>u</u> GAuGaggccguuaggccGaa Igcagua B	usascaca cuGAuGaggccguuaggccGaa Igccuuu B	ugcgcggu cVGAVGaggccguuaggccGaa Vacuca B	agususcecg cVGAVGaggccguuaggccGaa Vguacu B	agcgcgagccgunaggccGaa Uggcuc B	uscaascscg cVGAVGaggccguuaggccGaa Vuccgc B	CBagcgcgcogunaggccGaa Uccgca B	Csaggaa cVGAVGaggccguuaggccGaa Vaccac B	csascscu cVGAVGaggccguuaggccGaa Vcaggc B	ususcscsgu cVGAVGaggccguuaggccGaa Vacucac B	gsagcscau cVGAVGaggccguuaggccGaa Vggcucu B	CBugcgasccg cVGAVGaggccguuaggccGaa Vuccgca B	uscsagg cVGAVGaggccguuaggccGaa Vccgcag B	uscsaggca cVGAVGaggccguuaggccGaa Vaccaca B	gscsagccouraggccGaa Ucaggca B	agagususcg cVGAVGaggccguuaggccGaa Vguacuc B	ugggaggua gccgaaaggCgagugaGguCu accgga B	aggaugagagagagagaganca cagaan B	gggagag dccgaaaggCgagugaGguCu cauagu B	g _s c _s g _s aa gccgaaaggCgagugaGguCu cgguga B	g _g g _s c _g g _{ug} gccgaaaggCgagugaGguCu ccccgc B	g _{Bagagag} g gccgaaaggCgagugagguCu cuugug B
22526	22527	22528	22529	22530	22531	22532	22533	22534	22535	22536	22537	22544	22545	22546	22549	22550	22551	22552	22553	22554	22555	22556	22557	22558	22559	22560	22561	22562	22563	22564	22565	22566	22567	22568
7278	7279	7280	7281	7282	7283	7284	7285	7286	7287	7288	7289	7290	7291	7292	7293	7294	7295	7296	7297	7298	7299	7300	7301	7302	7303	7304	7305	7306	7307	7308	7309	7310	7311	7312
GAGAGCCAUAGUG	AGAGCCAUAGUGG	AAGGCCUUGUGGU	CCCUCCCGGGAGA	AAAGGCCUUGUGG	GUGGUCUGCGGAA	GGGUCCUUUGUUG	GCUAGCCGAGUAG	ACUGCCUGAUAGG	UACUGCCUGAUAG	UGGUACUGCCUGA	GUACACCGGAAUU	GUACUGCCUGAUAGG	UACUGCCUGAUAGGG	AAAGGCCUUGUGGUA	UGAGUACACCGGA	AGUACACCGGAAU	GAGCCAUAGUGGU	GCGGAACCGGUGA	UGCGGAACCGGUG	GUGGUACUGCCUG	GCCUGAUAGGGUG	GUGAGUACACCGGAA	AGAGCCAUAGUGGUC	UGCGGAACCGGUGAG	CUGCGGAACCGGUGA	UGUGGUACUGCCUGA	UGCCUGAUAGGGUGC	GAGUACACCGGAAUU	UCCGGUGUACUCA	AUUCCGGUGUACU	ACUAUGGCUCUCC	UCACCGGUUCCGC	GCGGGGCACGCC	CACAAGGCCUUUC
HCV+	HCV+	HCV+	HCV+	HCV+	HCV+	HCV+	HCV+	HCV+	HCV+	HCV+	HCV+	HCV+	HCV+	HCV+	HCV+	HCV+	HCV+	HCV+	HCV+	HCV+	+\0.0H	+ADH	+AOH	+ADH	HCV+	HCV+	HCV+	HCV+	HCA-	HCV-	HCV-	HCV-	HCV-	HCV-
139	140	281	130	280	149	194	255	294	293	290	169	293	294	281	166	168	141	156	155	289	297	166	141	156	155	289	297	168	166	168	138	156	236	279

Zinzyme	Zinzyme	Zinzyme	Zinzyme	Zinzyme	Zinzyme	Zinzyme	Zinzyme	Zinzyme	Zinzyme	Zinzyme	Amberzyme	Amberzyme	Amberzyme	Amberzyme	Amberzyme	Amberzyme	Amberzyme	Amberzyme	Amberzyme	Amberzyme	Amberzyme	Amberzyme	Amberzyme	Amberzyme	Amberzyme	Amberzyme	Amberzyme	Amberzyme	Amberzyme	Amberzyme	Amberzyme	Amberzyme	Amberzyme	Amberzyme
16067	16068	16069	16070	16071	16072	16073	16074	16075	16076	16077	16078	16079	16080	16081	16082	16083	16084	16085	16086	16087	16088	16089	16090	16091	16092	16093	16094	16095	16096	16091	16098	16099	16100	16101
g ₈ g ₈ u ₈ c ₈ ug gccgaaaggCgagugaGguCu ggaacc B	g _{sugag} c _s ug gccgaaaggCgagugaGguCu cugaua B	g _B u _B g _B g _B ua gccgaaaggCgagugaGguCu ugccug B	g _B u _g g _a gua gccgaaaggCgagugaGguCu accggaa B	c _s g _{sas} a _s agg gccgaaaggCgagugaGguCu cuugugg B	uggscggaaa gccgaaaggCgagugaGguCu cggugag B	gggggag accgaaaggCgagugaGguCu canagug B	uggggugcng gccgaaaggCgagugaGguCu ggaaccg B	g ₈ g ₈ u ₈ a ₈ cug gccgaaaggCgagugaGguCu cugauag B	usgsusggua gccgaaaggCgagugaGguCu ugccuga B	gsasgauga gccgaaaggCgagugaGguCu cggaauu B	c _B g _B g _B u _B ga cVGAVGaggccguuaggccGaa Vacacc B	geagecgaa cVGAVGaggccguuaggccGaa Vgagua B	aggaaggccgnnaggccGaa Vagugg B	agaggcc cVGAVGaggccguuaggccGaa Vguggu B	ususgsgc cVGAVGaggccguuaggccGaa Vgcccc B	gscsagua cVGAVGaggccguuaggccGaa Vggucu B	agugagud cVGAVGaggccgunaggccGaa Vcugcg B	g _g g _{ug} c _g cu cVGAVGaggccguuaggccGaa Vcuugg B	98989uscc cVGAVGaggccguuaggccGaa Vucuug B	gsgscsun cVGAVGaggccguuaggccGaa Vgguac B	cgugug cVGAVGaggccguuaggccGaa Vacugc B	usgscsug cVGAVGaggccguuaggccGaa Vagggu B	g _B a _B c _B c _B gg cVGAVGaggccguuaggccGaa Vccuuu B	c _s c _s g _s g _b uga cVGAVGaggccguuaggccGaa Vacaccg B	g _B a _g g _{ag} gcc coghUgaggccguuaggccGaa Vaguggu B	g _{ggagag} ccg cVGAVGaggccguuaggccGaa Vgaguac B	uguguggc cVGAVGaggccguuaggccGaa Vgccccc B	a _B g _s c _s c _s aua c <i>U</i> GA <i>U</i> GaggccguuaggccGaa <i>U</i> ggucug B	cgagugagecgunaggecGaa Veugegg B	gegegeus cogangacconnaggccaa ocuugaa B	agggcgau cOGAVGaggccguuaggccGaa Vgguacu B	agagasasas cughUGaggccguuaggccGaa Uguggua B	cguegscgcug cVGAVGaggccguuaggccGaa Vagggug B	c _s c _s u _s u _s gug cVGAVGaggccguuaggccGaa Vacugcc B
22569	22570	22571	22572	22573	22574	22575	22576	22577	22578	22579	22580	22581	22582	22583	22584	22585	22586	22587	22588	22589	22590	22591	22592	22593	22594	22595	22596	22597	22598	22599	22600	22601	22602	22603
7313	7314	7315	7316	7317	7318	7319	7320	7321	7322	7323	7324	7325	7326	7327	7328	7329	7330	7331	7332	7333	7334	7335	7336	7337	7338	7339	7340	7341	7342	7343	7344	7345	7346	7347
GGUUCCGCAGACC	UAUCAGGCAGUAC	CAGGCAGUACCAC	UUCCGGUGUACUCAC	CCACAAGGCCUUUCG	CUCACCGGUUCCGCA	CACUAUGGCUCUCCC	CGGUUCCGCAGACCA	CUAUCAGGCAGUACC	UCAGGCAGUACCACA	AAUUCCGGUGUACUC	GGUGUACUCACCG	UACUCACCGGUUC	CCACUAUGGCUCU	ACCACAAGGCCUU	GGGCCACGCCCAA	AGACCACUAUGGC	CGCAGACCACUAU	CCAAGAAGGACC	CAAGAAAGGACCC	GUACCACAAGGCC	GCAGUACCACAAG	ACCCUAUCAGGCA	AAAGGACCCGGUC	CGGUGUACUCACCGG	ACCACUAUGGCUCUC	GUACUCACCGGUUCC	GGGGCACGCCCAAA	CAGACCACUAUGGCU	CCGCAGACCACUAUG	UCCAAGAAGGACCC	AGUACCACAAGGCCU	UACCACAAGGCCUUU	CACCCUAUCAGGCAG	GGCAGUACCACAAGG
HCV-	HCV-	HCV-	HCV-	HCV-	HCV-	HCV-	HCV-	HCV-	HCV-	HCV-	-AOH	HCV-	HCV-	HCV-	HCV-	-ADH	-ADH	-AOH	HCV-	HCV-	HCV-	HCV-	HCV-	HCV-	HCV-	HCV-	HCV-	HCV-	HCV-	- ADH	HCV-	- AOH	HCV-	HCV-
151	292	289	166	279	156	138	151	292	289	168	163	159	140	281	233	143	146	195	194	283	286	296	190	163	140	159	233	143	146	195	283	281	296	286

		the property	7.548	67/77	uggaaga ucAug gcauccacuaugc gcg acugaga B	70707	מיכדעם אנוד
4832	HCV-	D	7349	22720	ggagagg uGAUg gcauGcacuaugc gCg auauaca B	16103	G-cleaver
4153	HCV-	ט	7350	22721	gcaugcacuaugc gCg acacggu	16104	G-cleaver
3200	HCV-	GUGGAGU G AGGUGGU	7351	22722		16105	G-cleaver
1682	HCV-	ט	7352	22723	acagguu uGAUg gcauGcacuaugc gCg aacucgu B	16106	G-cleaver
896	HCV+	CCUGUCU G ACCAUCC	7353	22724	ggauggu uGAUg gcauGcacuaugc gCg agacagg B	16107	G-cleaver
2504	HCV+	O	7354	22725		16108	G-cleaver
2651	HCV+	uccuceu e uncuncu	7355	22726	agaagaa uGAUg gcauGcacuaugc gCg acgagga B	16109	G-cleaver
4094	HCV+	ACAAAGU G CUCGUCC	7356	22727	gcauGcacuaugc	16110	G-cleaver
8970	HCV+	O	7357	22728	gguaggu uGAUg gcauGcacuaugc gCg aaguggc B	16111	G-cleaver
1200	+ACH	CUUCCUC G UCUCUCA	7358	22747	ugagaga gccgaaaggCgagugaGGuCu gaggaag B	16112	Zinzyme
1211	HCV+	CUCAGCU G UUCACCU	7359	22748	gccgaaaggCgagugaGGuCu	16113	Zinzyme
2504	HCV+	ប	7354	22749	ggaaaag gccgaaaggCgagugaGGuCu aacagga B	16114	Zinzyme
2651	HCV+	ט	7355	22750	acgagga	16115	Zinzyme
8811	HCV+	CACUCCA G UCAACUC	7360	22751	gaguuga gccgaaaggcgagugaGGucu uggagug B	16116	Zinzyme
8594	HCV-	uceccec e uccucuu	7361	22752	aagagga gccgaaaggCgagugaGGuCu gcggcga B	16117	Zinzyme
7985	HCV-	UCUCAGU G UCUUCCA	7348	22753	uggaaga gccgaaaggCgagugaGGuCu acugaga B	16118	Zinzyme
6611	HCV-		7362	22754	aggagua gccgaaaggCgagugaGGuCu guggagg B	16119	Zinzyme
5633	HCV-		7363	22755	cgaagca gccgaaaggCgagugaGGuCu augugga B	16120	Zinzyme
821	HCV-	UCACGCC G UCUUCCA	7364	22756	uggaaga gccgaaaggCgagugaGGuCu ggcguga B	16121	Zinzyme
870	HCV+	CUCUAUC U UCCUCUU	7365	22775	Iauagag	16122	Inozyme
1210	HCV+	Þ	7366	22776	ggugaac CUGAUGAggccgunaggccGAA Icugaga B	16123	Inozyme
2642	HCV+		7367	22777	cgaggaa CUGAUGAggccguuaggccGAA Iagagga B	16124	Inozyme
5726	HCV+	이	7368	22778	Icuguda	16125	Inozyme
8142	HCV+		7369	22779	Iguggag	16126	Inozyme
7990	HCV-	Þ	7370	22780	gacacug CUGAUGAggccguuaggccGAA Iacacca B	16127	Inozyme
7813	HCV-		7371	22781		16128	Inozyme
7137	HCV-	힏	7372	22782	ggaugag CUGAUGAggccguuaggccGAA Iagaggu B	16129	Inozyme
6084	HCV-	⋖	7373	22783	Igaugaa	16130	Inozyme
2554	HCV-	Þ	7374	22784	Icugung	16131	Inozyme
1202	HCV+		7375	22943	1 1	16132	Hammerhead
1607	HCV+	Þ	7376	22944	uccuguu CUGAUGAggccguuaggccGAA Augugcc B	16133	Hammerhead
2639	HCV+	이	7377	22945		16134	Hammerhead
6610	HCV+	GAGGAGU A CGUGGAG	7378	22946	Acuccuc	16135	Hammerhead
9014	HCV+	Þ	7379	22947	Aaugcgc	16136	Hammerhead
8605	HCV-	4	7380	22948	gcgagcc CUGAUGAggccguuaggccGAA Acgaguc B	16137	Hammerhead
7983	HCV-	이	7381	22949		16138	Hammerhead
7136	HCV-	CCUCUCU C UCAUCCU	7382	22950	CUGAUGAggccguuaggccGAA	16139	Hammerhead
6099	HCV-	UCCACGU A CUCCUCA	7383	22951		16140	Hammerhead
6292	HCV-		7384	22952	gacugga CUGAUGAggccgunaggccGAA Augcacg B	16141	Hammerhead
867	HCV+	⋖	7385	22971	aggaaga GGCTAGCTACAACGA agagaaa B	16142	DNAzyme
1200	HCV+		7358	22972	ugagaga GGCTAGCTACAACGA gaggaag B	16143	DNAzyme
1211	HCV+	CUCAGCU G UUCACCU	7359	22973	aggugaa GGCTAGCTACAACGA agcugag B	16144	DNAzyme
5730	HCV+	Ø	7386	22974	ggaggcn	16145	DNAzyme
6533	#CC+	UCAACGC A UACACCA	7387	22975	ugququa GGCTAGCTACAACGA gcquuga B	זעושו	DMANAMA

Hammerhead	16155	c _s c _s a _s ga cUGAuGaggcgWWWagccGaa Aggacc B	148 23086	7148	GGGUCCU U UCUUGGA	HCV+	195
Hammerhead	16154	WWWc _s c _s a _s a _s ga cUGAuGaggcgWWWagccGaa Aggacc B	23077	7148	GGGUCCU U UCUUGGA	HCV+	195
Hammerhead	16153	WWWWCgcgaga cUGAuGaggcguuagccGaa Aggacc B	23076	7148	eeenccn n nconees	HCV+	195
Hammerhead	16152	c _B c _B a _B ga cUGAuGaggcgWWagccGaa Aggacc B	23072	7148	eeencon n noonees	+AOH	195
DNAzyme	16151	guuguga GGCTAGCTACGA uuggagg B	22980	7390	CCUCCAA A UCACAAC	HCV-	2300
DNAzyme	16150	aggagua GGCTAGCTACAACGA guggagg В	22979	7362	CCUCCAC G UACUCCU	HCV-	6611
DNAzyme	16149	aggagga GGCTAGCTACGA gagagag B	22978	7389	CUCUCUC A UCCUCCU	HCV-	7133
DNAzyme	16148	aaggaga GGCTAGCTACAACGA gaaggcg B	22977	7388	CGCCUUC A UCUCCUU	HCV-	7810
DNAzyme	16147	aagagga GGCTAGCTACAACGA gcggcga B	22976	7361	nacacae e nacacan	HCV-	8594

lower case = 2'-O-methyl UPPER CASE = RIBO

 $\mathbf{B} = \text{inverted deoxy abasic}$

U = 2'-deoxy-2'-amino Uridine C = 2'-deoxy-2'-amino Cytidine U = 2'-deoxy-2'-amino Uridine Z = BRdU (5-bromo-2'-deoxy Uridine)

W = acyclic galactose-amine linker

UNDERLINE = deoxy nucleotide

PCT/US02/09187 WO 02/081494

TABLE XXI: ANTI HCV AMINO CONTAINING HAMMERHEAD RIBOZYME AND CONTROL SEQUENCES

pos	RPI#	HCV 5'UTR Site	Ribozyme Sequences (5'-3')	Core	Rz Seq ID
62	12257	HCV-62	g _s c _s g _s ugaa c U GA U GaggccguuaggccGaa AcaguagB	Active	15897
79	12258	HCV-79	$a_s u_s g_s$ gcua c $\overline{U}GAUGaggccguuaggccGaa$ AcgcuuuB	Active	15898
81	12249	HCV-81	cscsasuggc cUGAUGaggccguuaggccGaa AgacgcuB	Active	15899
104	12259	HCV-104	g _s c _s u _s gcac c <i>UGAU</i> GaggccguuaggccGaa AcacucaB	Active	15900
142	12250	HCV-142	a _s g _s a _s ccac c U GA U GaggccguuaggccGaa AuggcucB	Active	15901
148	12251	HCV-148	u _s u _s c _s cgca c U GA U GaggccguuaggccGaa AccacuaB	Active	15902
165	12260	HCV-165	uscscsgug cUGAUGaggccguuaggccGaa AcucaccB	Active	15903
192	12261	HCV-192	a _s a _s g _s aaag c U GA U GaggccguuaggccGaa AcccgguB	Active	15904
195	12252	HCV-195	u _s c _s c _s aaga c U GA U GaggccguuaggccGaa AggacccB	Active	15905
196	12262	HCV-196	$a_s u_s c_s caag c U GAU Gagg c c g u u a g g c c Gaa Aagg a c C B$	Active	15906
270	12263	HCV-270	c _s u _s u _s ucgc c U GA U GaggccguuaggccGaa AcccaacB	Active	15907
282	12264	HCV-282	g _s u _s a _s ccac c U GA U GaggccguuaggccGaa AggccuuB	Active	15908
306	12265	HCV-306	c _s a _s c _s ucgc cUGAUGaggccguuaggccGaa AgcacccB	Active	15909
325	12253	HCV-325	$u_s c_s u_s$ acga c $UGAUG$ aggccguuaggcc G aa Accuccc B	Active	15910
330	12254	HCV-330	c _s a _s c _s gguc c <i>UGAU</i> GaggccguuaggccGaa AcgagacB	Active	15911
			Control Sequences		
79	13274	HCV-79 AC2	$c_s u_s u_s$ aggu c \emph{U} AG \emph{U} GaggccguuaggccGau AguucucB	Attenuated	16171
81	13271	HCV-81 AC	u _s c _s u _s gccg cUAGUGaggccguuaggccGau AgugaccB	Attenuated	16172
142	13270	HCV-142 AC	asascsccug cUAGUGaggccguuaggccGau AgcucguB	Attenuated	16173
192	13272	HCV-192 AC	a _s g _s u _s agaa cUAGUGaggccguuaggccGau AgcugccB	Attenuated	16174
195	13269	HCV-195 AC	$g_s a_s u_s$ ucca c U AG U GaggccguuaggccGau AcgcgacB	Attenuated	16175
282	13273	HCV-282 AC	gscscauuc cVAGVGaggccguuaggccGau AucuggcB	Attenuated	16176
330	13268	HCV-330 AC	c _s c _s a _s ggcu c U AG U GaggccguuaggccGau AaugcgcB	Attenuated	16177
195	15291	HCV-195 BAC3	$u_s c_s c_s$ aaga c U AG U Gac g cc g uua g g c g Gaa A g gac g CB	Attenuated	16178
195	15292	HCV-195 SAC3	$a_{8}g_{8}a_{8}cuac$ cUAGUGacgccguuaggcgGaa AcccgagB	Attenuated	16179
330	15294	HCV-330 BAC	$c_{s}a_{s}c_{s}$ gguc c v AG v GacgccguuaggcgGaa AcgagacB	Attenuated	16180
330	15295	HCV-330 SAC	g _s c _s u _s ccga c <i>U</i> AG <i>U</i> GacgccguuaggcgGaa AgacacgB	Attenuated	16181

UPPER CASE = RIBO; lower case = 2'-O-methyl; B = inverted deoxyabasic; s = phosphorothioate linkage U = 2'-deoxy-2'-amino uridine

TABLE XXII: ANTI HCV SITE 330 ANTISENSE NUCLEIC ACID AND SCRAMBLED CONTROL SEQUENCES

pos	RPI#	Alias	Antisense Nucleic Acid	Seq ID#
330	17501	HCV.5-330 antisense	G _S T _S G _S C _S T _S C _S A _S T _S G _S A _S T _S G _S C _S A _S C _S G _S G _S T _S C _S T	15898
330	17498	HCV.5-330 antisense	G _S T _S G _S C _S T _S C _S A _S T _S G _S G _S T _S G _S C _S A _S C _S G _S G _S T _S C _S T	16182

pos	RPI#	Alias	Control Sequence	Seq ID#
330	17499	HCV.5-330 scrambled	$ T_{\mathbf{S}} G_{\mathbf{S}} A_{\mathbf{S}} \ T_{\mathbf{S}} C_{\mathbf{S}} A_{\mathbf{S}} \ G_{\mathbf{S}} G_{\mathbf{S}} T_{\mathbf{S}} \ C_{\mathbf{S}} T_{\mathbf{S}} G_{\mathbf{S}} \ C_{\mathbf{S}} T_{\mathbf{S}} G_{\mathbf{S}} \ C_{\mathbf{S}} G_{\mathbf{S}} T_{\mathbf{S}} \ G_{\mathbf{S}} C_{\mathbf{S}} C_{S$	16183
330	17502	HCV.5-330 Scrambled	$T_{\mathbf{s}}G_{\mathbf{s}}A_{\mathbf{s}}T_{\mathbf{s}}C_{\mathbf{s}}A_{\mathbf{s}}G_{\mathbf{s}}G_{\mathbf{s}}T_{\mathbf{s}}C_{\mathbf{s}}T_{\mathbf{s}}G_{\mathbf{s}}C_{\mathbf{s}}T_{\mathbf{s}}G_{\mathbf{s}}C_{\mathbf{s}}A_{\mathbf{s}}T_{\mathbf{s}}G_{\mathbf{s}}C$	16184

UPPER CASE = Deoxy Nucleotide s = phosphorothioate

TABLE XXIII: IN VITRO CLEAVAGE DATA, ANTI-HCV ENZYMATIC NUCLEIC ACIDS

22943 Hammerhead 1190 (+) gcugaga CUGAUGAggccguuaggccGAA Acgagga B 22944 Hammerhead 1595 (+) uccuguu CUGAUGAggccguuaggccGAA Augugcc B 22945 Hammerhead 2627 (+) ggaagga CUGAUGAggccguuaggccGAA Aggaugc B 22946 Hammerhead 6598 (+) cuccacg CUGAUGAggccguuaggccGAA Acuccuc B 22947 Hammerhead 9002 (+) ggaaguga CUGAUGAggccguuaggccGAA Acuccuc B 22948 Hammerhead 818 (-) gcaggcc CUGAUGAggccguuaggccGAA Acacuga B 22949 Hammerhead 1440 (-) gcuggaa CUGAUGAggccguuaggccGAA Acacuga B 22949 Hammerhead 2287 (-) aggauga CUGAUGAggccguuaggccGAA Acacuga B 22951 Hammerhead 2814 (-) ugaggag CUGAUGAggccguuaggccGAA Acacuga B 22951 Hammerhead 2814 (-) ugaggag CUGAUGAggccguuaggccGAA Acacuga B 22951 Hammerhead 2814 (-) ugaggag CUGAUGAggccguuaggccGAA Acacuga B	Seq ID # RPI#	Motif	Site (+/-)	Enzymatic Nucleic Acid Sequence	% Substrate	Substrate Sequence	Sed ID#	Substrate
22943 Hammerhead 1190 (+) gcugaga CUGAUGAggccguuaggccGAA Acgagga B 22944 Hammerhead 1595 (+) uccuguu CUGAUGAggccguuaggccGAA Augugcc B 22945 Hammerhead 2627 (+) ggaagga CUGAUGAggccguuaggccGAA Aggaugc B 22947 Hammerhead 9002 (+) ggaagga CUGAUGAggccguuaggccGAA Acuccuc B 22948 Hammerhead 818 (-) gcagacc CUGAUGAggccguuaggccGAA Acuccuc B 22949 Hammerhead 1440 (-) gcuggaa CUGAUGAggccguuaggccGAA Acacuga B 22950 Hammerhead 2287 (-) aggauga CUGAUGAggccguuaggccGAA Acacuga B 22951 Hammerhead 2281 (-) ugaggag CUGAUGAggccguuaggccGAA Acacuga B			,	•	Cleaved in 3 hours	•	•	RPI#
22944 Hammerhead 1595 (+) uccuguu CUGAUGAggccguuaggccGAA Augugcc B 22945 Hammerhead 2627 (+) ggaagga CUGAUGAggccguuaggccGAA Aggaugc B 22946 Hammerhead 6598 (+) cuccacg CUGAUGAggccguuaggccGAA Acuccuc B 22947 Hammerhead 9002 (+) ggaguga CUGAUGAggccguuaggccGAA Acuccuc B 22948 Hammerhead 818 (-) gcgagcc CUGAUGAggccguuaggccGAA Acacuga B 22949 Hammerhead 1440 (-) gcuggaa CUGAUGAggccguuaggccGAA Acacuga B 22950 Hammerhead 2287 (-) aggauga CUGAUGAggccguuaggccGAA Acacuga B 22951 Hammerhead 2814 (-) ugaggag CUGAUGAggccguuaggccGAA Acqugga B 22951 Hammerhead 2814 (-) ugaggag CUGAUGAggccguuaggccGAA Acqugga B	L	Hammerhead	1190 (+)	gcugaga CUGAUGAggccguuaggccGAA Acgagga B	89.67	UCCUCGU C UCUCAGC B	7391	22897
22945 Hammerhead 2627 (+) ggaagga CUGAUGAggccguuaggccGAA Aggaugc B 22946 Hammerhead 6598 (+) cuccacg CUGAUGAggccguuaggccGAA Acuccuc B 22947 Hammerhead 9002 (+) ggaguga CUGAUGAggccguuaggccGAA Acuccuc B 22949 Hammerhead 818 (-) gcgagcc CUGAUGAggccguuaggccGAA Acacuga B 22949 Hammerhead 1440 (-) gcuggaa CUGAUGAggccguuaggccGAA Acacuga B 22950 Hammerhead 2287 (-) aggauga CUGAUGAggccguuaggccGAA Acacuga B 22951 Hammerhead 2814 (-) ugaggag CUGAUGAggccguuaggccGAA Acqugga B	├	Hammerhead	1595 (+)	uccuguu CUGAUGAggccguuaggccGAA Augugcc B	90.33	GGCACAU U AACAGGA B	7392	22898
22946 Hammerhead 6598 (+) cuccacg CUGAUGAggccguuaggccGAA Acuccuc B 22947 Hammerhead 9002 (+) ggaguga CUGAUGAggccguuaggccGAA Aaugcgc B 22948 Hammerhead 818 (-) gcgagcc CUGAUGAggccguuaggccGAA Aaugcgc B 22949 Hammerhead 1440 (-) gcuggaa CUGAUGAggccguuaggccGAA Acacuga B 22950 Hammerhead 2287 (-) aggauga CUGAUGAggccguuaggccGAA Acacuga B 22951 Hammerhead 2814 (-) ugaggag CUGAUGAggccguuaggccGAA Acqugga B		_	2627 (+)	ggaagga CUGAUGAggccguuaggccGAA Aggaugc B	82.54	GCAUCCU C UCCUUCC B	7393	22899
22947 Hammerhead 9002 (+) ggaguga CUGAUGAggccguuaggccGAA Aaugggc B 22948 Hammerhead 818 (-) gcgagcc CUGAUGAggccguuaggccGAA Acgaguc B 22949 Hammerhead 1440 (-) gcuggaa CUGAUGAggccguuaggccGAA Acacuga B 22950 Hammerhead 2287 (-) aggauga CUGAUGAggccguuaggccGAA Agagagg B 22951 Hammerhead 2814 (-) ugaggag CUGAUGAggccguuaggccGAA Acgugga B		l	(+) 8659	cuccacg CUGAUGAggccguuaggccGAA Acuccuc B	78.06	GAGGAGU A CGUGGAG B	7394	22900
22948 Hammerhead 818 (-) gcgagcc CUGAUGAggccguuaggccGAA Acgaguc B 22949 Hammerhead 1440 (-) gcuggaa CUGAUGAggccguuaggccGAA Acacuga B 22950 Hammerhead 2287 (-) aggauga CUGAUGAggccguuaggccGAA Agagagg B 22951 Hammerhead 2814 (-) ugaggag CUGAUGAggccguuaggccGAA Acgugga B			9002 (+)	ggaguga CUGAUGAggccguuaggccGAA Aaugcgc B	81.88	GCGCAUU U UCACUCC B	7395	22901
22949 Hammerhead 1440 (-) gcuggaa CUGAUGAggccguuaggccGAA Acacuga B 22950 Hammerhead 2287 (-) aggauga CUGAUGAggccguuaggccGAA Agagagg B 22951 Hammerhead 2814 (-) ugaggag CUGAUGAggccguuaggccGAA Acgugga B			818 (-)	gcgagcc CUGAUGAggccguuaggccGAA Acgaguc B	88.34	GACUCGU A GGCUCGC B	7396	22902
22950 Hammerhead 2287 (-) aggauga CUGAUGAggccguuaggccGAA Agagagg B 22951 Hammerhead 2814 (-) ugaggag CUGAUGAggccguuaggccGAA Acgugga B 23062 Unamethead 2434 (-)	<u> </u>	Hammerhead	1440 (-)	gcuggaa CUGAUGAggccguuaggccGAA Acacuga B	89.16	UCAGUGU C UUCCAGC B	7397	22903
22951 Hammerhead 2814 (-) ugaggag CUGAUGAggccguuaggccGAA Acgugga B	_	Hammerhead	2287 (-)	aggauga CUGAUGAggccguuaggccGAA Agagagg B	83.43	CCUCUCU C UCAUCCU B	7398	22904
230E2 Usumother 2424 / 2424		Hammerhead	2814 (-)	ugaggag CUGAUGAggccguuaggccGAA Acgugga B	83.25	UCCACGU A CUCCUCA B	7399	22905
ZZ33Z Hamilienieau 3131 (*) gacugga COGAOGAGGCGuuaggcccAA Augcacg B	16141 22952	Hammerhead	3131 (-)	gacugga CUGAUGAggccguuaggccGAA Augcacg B	96:98	CGUGCAU A UCCAGUC B	7400	22906

16142	22971	DNAzyme	855 (+)	aggaaga GGCTAGCTACAACGA agagaaa B	92.11	NUUCUCU A UCUUCCU B	7401	22925
16143	22972	DNAzyme	1188 (+)	ugagaga GGCTACCTACAACGA gaggaag B	86.38	CUUCCUC G UCUCUCA B	7402	22926
16144	22973	DNAzyme	1199 (+)	aggugaa GGCTAGCTACAACGA agcugag B	83.15	CUCAGCU G UUCACCU B	7403	22927
16145	22974	DNAzyme	5718 (+)	cugguga GGCTAGCTACAACGA ggaggcu B	57.82	AGCCUCC A UCACCAG B	7404	22928
16146	22975	DNAzyme	6521 (+)	uggugua GGCTAGCTACAACGA gcguuga B	75.77	UCAACGC A UACACCA B	7405	22929
16147	22976	DNAzyme	829 (-)	aagagga GCTAGCTACAACGA gcggcga B	90.99	UCGCCGC G UCCUCUU B	7406	22930
16148	22977	DNAzyme	1613 (-)	aaggaga GGCTAGCTACAACGA gaaggcg B	71.28	CGCCUUC A UCUCCUU B	7407	22931
16149	22978	DNAzyme	2290 (-)	aggagga GGCTAGCTACAACGA gagagag B	61.60	CUCUCUC A UCCUCCU B	7408	22932
16150	22979	DNAzyme	2812 (-)	aggagua GGCTAGCTACAACGA guggagg B	85.53	CCUCCAC G UACUCCU B	7409	22933
16151	22980	DNAzyme	7123 (-)	guuguga GGCTAGCTACAACGA uuggagg B	34.60	CCUCCAA A UCACAAC B	7410	22934

22719 G-cleaver 1438 (+) uggaaga uGAUg gcauGcacuaugc gCg acugaga B 69.88 UCUCAGU G UCUUCCA B 7411 22720 G-cleaver 4591 (+) ggaagag uGAUg gcauGcacuaugc gCg acuacaca B 77.74 UGUAUAU G CCUCUCC B 7412 22721 G-cleaver 5270 (+) ucuaagg uGAUg gcauGcacuaugc gCg acuccac B 77.74 UGUAUAU G CCUUAGA B 7413 22722 G-cleaver 6223 (+) accaccu uGAUg gcauGcacuaugc gCg acuccac B 75.84 GUGGAGU G AGGUGGU B 7414 22723 G-cleaver 7741 (+) acagguu uGAUg gcauGcacuaugc gCg aacucgu B 61.58 ACGAGUU G ACCUUCU B 7415 22724 G-cleaver 884 (-) ggaaagg uGAUg gcauGcacuaugc gCg aacaggg B 65.16 CCUGUCU G ACCAUCC B 7416 22725 G-cleaver 2492 (-) ggaaaag uGAUg gcauGcacuaugc gCg aacaggg B 94.66 UCCUGUU G CUUUUCC B 7417 22726 G-cleaver 2639 (-) acaagga uGAUg gcauGcacuaugc gCg aacaggg B 94.66 UCCUGUU G CUUUUCC B 7417								
22720 G-cleaver 1438 (+) uggaaga uGAUg gcauGcacuaugc gCg acugaga B 69.88 UCUCAGU G UCUUCCA B 22720 G-cleaver 4591 (+) ggaagag uGAUg gcauGcacuaugc gCg acacggu B 77.74 UGUAUAU G CCUUUCC B 22721 G-cleaver 5270 (+) ucuaagg uGAUg gcauGcacuaugc gCg acacggu B 77.74 UGUAUAU G CCUUNGC B 22722 G-cleaver 6223 (+) accaccu uGAUg gcauGcacuaugc gCg acacaggu B 75.84 GUGGAGU G AGGUGGU B 22723 G-cleaver 7741 (+) acagguu uGAUg gcauGcacuaugc gCg acacaggu B 61.58 ACGAGUU G AACCUGU B 22724 G-cleaver 289 (-) ggaaaag uGAUg gcauGcacuaugc gCg acacagg B 65.16 CCUGUCU G ACCAUCC B 22725 G-cleaver 2492 (-) ggaaaag uGAUg gcauGcacuaugc gCg acacagg B 94.66 UCCUGUU G CUUUUCC B 22726 G-cleaver 2639 (-) acaagaa uGAUg gcauGcacuaugc gCg acacagga B 94.66 UCCUGUU G CUUUUCC B	22813	22814	22815	22816	22817	22818	22819	22820
22719 G-cleaver 1438 (+) uggaaga uGAUg gcauGcacuaugc gCg acugaga B 69.88 UCUCAGU G UCUUCCA B 22720 G-cleaver 4591 (+) ggagagg uGAUg gcauGcacuaugc gCg acacaggu B 77.74 UGUAUAU G CCUCUCC B 22721 G-cleaver 5270 (+) ucuaagg uGAUg gcauGcacuaugc gCg acacaggu B 77.74 UGUAUAU G CCUUUAGA B 22722 G-cleaver 6223 (+) accaccu uGAUg gcauGcacuaugc gCg acacaggu B 75.84 GUGGAGU G AGGUGGU B 22723 G-cleaver 7741 (+) acagguu uGAUg gcauGcacuaugc gCg acacagg B 61.58 ACGAGUU G AACCUGU B 22724 G-cleaver 2884 (-) ggaaaag uGAUg gcauGcacuaugc gCg acacagg B 65.16 CCUGUCU G ACCAUCC B 22725 G-cleaver 2492 (-) ggaaaaag uGAUg gcauGcacuaugc gCg acacagg B 94.66 UCCUGUU G CUUUUCC B 22726 G-cleaver 2639 (-) acaagaa uGAUg gcauGcacuaugc gCg acacagga B 94.66 UCCUGUU G CUUUUCC B	7411	7412		7414	7415	7416	7417	7418
22719 G-cleaver 1438 (+) uggaaga uGAUg gcauGcacuaugc gCg acugaga B 22720 G-cleaver 4591 (+) ggagagg uGAUg gcauGcacuaugc gCg auauaca B 22721 G-cleaver 5270 (+) ucuaaagg uGAUg gcauGcacuaugc gCg acacggu B 22722 G-cleaver 7741 (+) acagguu uGAUg gcauGcacuaugc gCg acucaca B 22723 G-cleaver 7741 (+) acagguu uGAUg gcauGcacuaugc gCg acucagu B 22724 G-cleaver 884 (-) ggaauggu uGAUg gcauGcacuaugc gCg acucagu B 22725 G-cleaver 2492 (-) ggaaaag uGAUg gcauGcacuaugc gCg aacagga B 22726 G-cleaver 2639 (-) acaacaa uGAUg gcauGcacuaugc gCg aacagga B	UCUCAGU G UCUUCCA B	UGUAUAU G CCUCUCC B	ACCGUGU G CCUUAGA B	GUGGAGU G AGGUGGU B	ACGAGUU G AACCUGU B	CCUGUCU G ACCAUCC B	nccnenn e connocc B	UCCUCEU E UUCUUCU B
22720 G-cleaver 1438 (+) 22720 G-cleaver 4591 (+) 22721 G-cleaver 5270 (+) 22722 G-cleaver 6223 (+) 22723 G-cleaver 7741 (+) 22724 G-cleaver 884 (-) 22725 G-cleaver 2492 (-) 22726 G-cleaver 2492 (-)	69.88	77.74	47.37	75.84	61.58	65.16	94.66	82.14
22720 G-cleaver 22721 G-cleaver 22722 G-cleaver 22722 G-cleaver 22723 G-cleaver 22724 G-cleaver 22726 G-cleaver	uggaaga uGAUg gcauGcacuaugc gCg acugaga B	ggagagg uGAUg gcauGcacuaugc gCg auauaca B	ucuaagg uGAUg gcauGcacuaugc gCg acacggu B	accaccu uGAUg gcauGcacuaugc gCg acuccac B	acagguu uGAUg gcauGcacuaugc gCg aacucgu B	ggauggu uGAUg gcauGcacuaugc gCg agacagg B	ggaaaag uGAUg gcauGcacuaugc gCg aacagga B	agaagaa uGAUg gcauGcacuaugc gCg acgagga B
22719 22720 22721 22722 22723 22724 22726	1438 (+)	4591 (+)	5270 (+)	6223 (+)	7741 (+)	884 (-)	2492 (-)	2639 (-)
16102 22719 16103 22720 16104 22721 16105 22722 16106 22723 16107 22724 16108 22725	G-cleaver							
16102 16104 16105 16106 16107 16108	22719	22720	22721	22722	22723	22724	22725	22726
	16102	16103	16104	16105			16108	16109

16110	16110 22727	G-cleaver	4082 (-)	ggacgag uGAUg gcauGcacuaugc gCg acuuugu B	67.20	ACAAAGU G CUCGUCC B	7419	22821
16111	22728	G-cleaver	8958 (-)	gguaggu uGAUg gcauGcacuaugc gCg aaguggc B	81.06	GCCACUU G ACCUACC B	7420	22822
16112	22747	Zinzyme	1188 (+)	ugagaga gccgaaaggCgagugaGGuCu gaggaag B	66.11	CUUCCUC G UCUCUCA B	7402	22841
16113	22748	Zinzyme	1199 (+)	aggugaa gccgaaaggCgagugaGGuCu agcugag B	80.28	CUCAGCU G UUCACCU B	7403	22842
16114	22749	Zinzyme	2492 (+)	ggaaaag gccgaaaggCgagugaGGuCu aacagga B	90.80	UCCUGUU G CUUUUCC B	7417	22843
16115	22750	Zinzyme	2639 (+)	agaagaa gccgaaaggCgagugaGGuCu acgagga B	80.64	UCCUCEU G UUCUUCU B	7418	22844
91191	22751	Zinzyme	(+) 66.28	gaguuga gccgaaaggCgagugaGuCu uggagug B	14.85	CACUCCA G UCAACUC B	7421	22845
16117	22752	Zinzyme	829 (-)	aagagga gccgaaaggCgagugaGGuCu gcggcga B	27.83	nceccec e nccncnn B	7406	22846
16118	22753	Zinzyme	1438 (-)	uggaaga gccgaaaggCgagugaGGuCu acugaga B	89.39	UCUCAGU G UCUUCCA B	7411	22847
16119	22754	Zinzyme	2812 (-)	aggagua gccgaaaggCgagugaGGuCu guggagg B	50.40	CCUCCAC G UACUCCU B	7409	22848
16120	22755	Zinzyme	3790 (-)	cgaagca gccgaaaggCgagugaGGuCu augugga B	81.10	UCCACAU G UGCUUCG B	7422	22849
16121	22756	Zinzyme	8602 (-)	uggaaga gccgaaaggCgagugaGGuCu ggcguga B	73.47	UCACGCC G UCUUCCA B	7423	22850

16123 22776 Inozyme 1198 (+) ggugaac CUGAUGAggccguuaggccGAA lcugaga B 84.55 UCCUCCUC C UUCCUC 16124 22777 Inozyme 2630 (+) cgaggaa CUGAUGAggccguuaggccGAA lcuguga B 90.12 UCCUCUC C UUCCUC 16125 22778 Inozyme 5714 (+) ugauggaa CUGAUGAggccguuaggccGAA lcuguga B 83.77 UCACAGC C UCCAUC 16127 22789 Inozyme 1433 (+) gacacug CUGAUGAggccguuaggccGAA lcuguga B 87.33 UGGUGUC U CAUCCUC 16128 22781 Inozyme 1610 (+) gagauga CUGAUGAggccguuaggccGAA lacacca B 87.33 UGGUGUC U CAUCCUC 16129 22782 Inozyme 1610 (+) gagauga CUGAUGAggccguuaggccGAA lagaga B 77.67 CUUCGCC U UCAUC 16129 22782 Inozyme 2286 (+) ggaugag CUGAUGAggccguuaggccGAA lagaga B 78.83 ACCUCUC U CAUCC 16130 22783 lnozyme 3339 (+) uggauga CUGAUGAggccguuaggccGAA lagauga B 86.93 UUCAUCC A CUGCAC 16131 22784 lnozyme 6869 (+) uggauga CUGAUGAggccguuaggccGAA lagauga B 90.41 <	16122	22775	Inozyme	828 (+)	aagagga CUGAUGAggccguuaggccGAA lauagag B	87.74	CUCUANC U UCCUCUU B	7424	22869
22777 Inozyme 2630 (+) cgaggaa CUGAUGAggccguuaggccGAA lagagga B 90.12 22778 Inozyme 5714 (+) ugaugga CUGAUGAggccguuaggccGAA lauguga B 83.77 22779 Inozyme 1433 (+) ugaaggaa CUGAUGAggccguuaggccGAA lauguga B 82.22 22780 Inozyme 1433 (+) gacacug CUGAUGAggccguuaggccGAA lauguga B 87.33 22781 Inozyme 1610 (+) gagauga CUGAUGAggccguuaggccGAA lauguga B 77.67 22782 Inozyme 2286 (-) ggaugag CUGAUGAggccguuaggccGAA lauguga B 78.83 22783 Inozyme 3339 (-) ugugcag CUGAUGAggccguuaggccGAA lgaugaa B 86.93 22784 Inozyme 6869 (-) uggauga CUGAUGAggccguuaggccGAA lgaugaa B 86.93	16123	22776	Inozyme	1198 (+)	ggugaac CUGAUGAggccguuaggccGAA Icugaga B	84.55	UCUCAGC U GUUCACC B	7425	22870
22778 Inozyme 5714 (+) ugaugga CUGAUGAggccguuaggccGAA leuguga B 83.77 22779 Inozyme 8130 (+) ugaggaa CUGAUGAggccguuaggccGAA lguggag B 82.22 22780 Inozyme 1433 (+) gacacug CUGAUGAggccguuaggccGAA lacacca B 87.33 22781 Inozyme 1610 (+) gagauga CUGAUGAggccguuaggccGAA lacacca B 70.67 22782 Inozyme 2286 (-) ggaugag CUGAUGAggccguuaggccGAA lagagg B 78.83 22783 Inozyme 3339 (-) ugugcag CUGAUGAggccguuaggccGAA lgaugaa B 86.93 22784 Inozyme 6869 (-) uggauga CUGAUGAggccguuaggccGAA louguug B 90.41	16124	—	Inozyme	2630 (+)	cgaggaa CUGAUGAggccguuaggccGAA lagagga B	90.12	UCCUCUC C UUCCUCG B	7426	22871
22779 Inozyme 8130 (+) ugaagaa CUGAUGAggccguuaggccGAA lguggag B 82.22 22780 Inozyme 1433 (-) gacacug CUGAUGAggccguuaggccGAA lacacca B 87.33 22781 Inozyme 1610 (-) gagauga CUGAUGAggccguuaggccGAA lacacca B 70.67 22782 Inozyme 2286 (-) ggaugag CUGAUGAggccguuaggccGAA lagagag B 78.83 22783 Inozyme 3339 (-) ugugcag CUGAUGAggccguuaggccGAA lgaugaa B 86.93 22784 Inozyme 6869 (-) uggauga CUGAUGAggccguuaggccGAA lcuguug B 90.41	16125	22778	Inozyme	5714 (+)	ugaugga CUGAUGAggccguuaggccGAA Icuguga B	83.77	UCACAGC C UCCAUCA B	7427	22872
22780 Inozyme 1433 (-) gacacug CUGAUGAggccguuaggccGAA lacacca B 87.33 22781 Inozyme 1610 (-) gagauga CUGAUGAggccguuaggccGAA lacagag B 70.67 22782 Inozyme 2286 (-) ggaugag CUGAUGAggccguuaggccGAA lagagg B 78.83 22783 Inozyme 3339 (-) uggauga CUGAUGAggccguuaggccGAA lagauga B 86.93 22784 Inozyme 6869 (-) uggauga CUGAUGAggccguuaggccGAA louguug B 90.41	16126		Inozyme	8130 (+)	ugaggaa CUGAUGAggccguuaggccGAA Iguggag B	82.22	CUCCACC C UUCCUCA B	7428	22873
22781 Inozyme 1610 (-) gagauga CUGAUGAggccguuaggccGAA lgcgaag B 70.67 22782 Inozyme 2286 (-) ggaugag CUGAUGAggccguuaggccGAA lagaggu B 78.83 22783 Inozyme 3339 (-) ugugcag CUGAUGAggccguuaggccGAA lgauga B 86.93 22784 Inozyme 6869 (-) uggauga CUGAUGAggccguuaggccGAA lcuguug B 90.41	16127	22780	Inozyme	1433 (-)	gacacug CUGAUGAggccguuaggccGAA lacacca B	87.33	UGGUGUC U CAGUGUC B	7429	22874
22782 Inozyme 2286 (-) ggaugag CUGAUGAggccguuaggccGAA lagaggu B 78.83 22783 Inozyme 3339 (-) ugugcag CUGAUGAggccguuaggccGAA lgaugaa B 86.93 22784 Inozyme 6869 (-) uggauga CUGAUGAggccguuaggccGAA lcuguug B 90.41	16128		Inozyme	1610 (-)	gagauga CUGAUGAggccguuaggccGAA Igcgaag B	79.07	CUUCGCC U UCAUCUC B	7430	22875
22783 Inozyme 3339 (-) ugugcag CUGAUGAggccguuaggccGAA Igaugaa B 86.93	16129	22782	Inozyme	2286 (-)	ggaugag CUGAUGAggccguuaggccGAA lagaggu B	78.83	ACCUCUC U CUCAUCC B	7431	22876
22784 Inozyme 6869 (-) uggauga CUGAUGAggcoguuaggccGAA Icuguug B 90.41	16130	22783	Inozyme	3339 (-)	ugugcag CUGAUGAggccguuaggccGAA Igaugaa B	86.93	UUCAUCC A CUGCACA B	7432	22877
	16131	22784	Inozyme	(-) 6989	uggauga CUGAUGAggccguuaggccGAA Icuguug B	90.41	CAACAGC A UCAUCCA B	7433	22878

In vitro cleavage in 50 mM Tris-Cl, pH 8.0, 40 mM Mg²⁺ at 37°, using trace substrate, and enzymatic nucleic acid concentration of 500 nM or greater.

UNDERLINED = DEOXY UPPER CASE = RIBO

lower case = 2'-O-methyl B = inverted deoxyabasic

C = 2'-amino C (+/-) = plus strand/minus strand of HCV genome

CLAIMS

What we claim is:

1. A compound having Formula I:

- wherein X₁ is an integer selected from the group consisting of 1, 2, and 3; X₂ is an integer greater than or equal to 1; R₆ is independently selected from the group consisting of H, OH, NH₂, O NH₂, alkyl, S-alkyl, O-alkyl, O-alkyl-S-alkyl, O-alkoxyalkyl, allyl, O-allyl, and fluoro; each R₁ and R₂ are independently selected from the group consisting of O and S; each R₃ and R₄ are independently selected from the group consisting of O, N, and S; and R₅ is selected from the group consisting of alkyl, alkylamine, oligonucleotide having any of SEQ ID NOS. 11343-16182, oligonucleotide having a sequence complementary to any of SEQ ID NOS. 2594-7433, and abasic moiety.
 - 2. The compound of claim 1, wherein said oligonucleotide having a sequence complementary to any of SEQ ID NOS. 2594-7433 is an enzymatic nucleic acid molecule.
- 15 3. The compound of claim 1, wherein said oligonucleotide having a sequence complementary to any of SEQ ID NOS. 2594-7433 is an antisense nucleic acid molecule.

4. The compound of claim 2, wherein said enzymatic nucleic acid molecule is selected from the group consisting of Hammerhead, Inozyme, G-cleaver, DNAzyme, Amberzyme, and Zinzyme motifs.

- 5. The compound of claim 2, wherein said Inozyme enzymatic nucleic acid molecule comprises a stem II region of length greater than or equal to 2 base pairs.
 - 6. The compound of claim 2, wherein said enzymatic nucleic acid comprises between 12 and 100 bases complementary to an RNA derived from HCV.
 - 7. The compound of claim 2, wherein said enzymatic nucleic acid comprises between 14 and 24 bases complementary to an RNA derived from HCV.
- 8. The compound of claim 3, wherein said antisense nucleic acid comprises between 12 and 100 bases complementary to an RNA derived from HCV.
 - 9. The compound of claim 3, wherein said antisense nucleic acid comprises between 14 and 24 bases complementary to an RNA derived from HCV.
- 10. A composition comprising the compound of claim 1 and a pharmaceutically acceptable carrier.
 - 11. A mammalian cell comprising a compound of claim 1.

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- 12. The mammalian cell of claim 11, wherein said mammalian cell is a human cell.
- 13. A method for treatment of cirrhosis, liver failure, hepatocellular carcinoma, or a condition associated with HCV infection comprising the step of administering to a patient a compound of claim 1 under conditions suitable for said treatment.
 - 14. The method of claim 13 further comprising the use of one or more drug therapies under conditions suitable for said treatment.
- 15. A method for inhibiting HCV replication in a mammalian cell comprising the step of administering to said cell the compound of claim 1 under conditions suitable for said inhibition.

16. A method of cleaving a separate RNA molecule comprising contacting the compound of claim 1 with said separate RNA molecule under conditions suitable for the cleavage of said separate RNA molecule.

- 17. The method of claim 16, wherein said cleavage is carried out in the presence of a divalent cation.
- 18. The method of claim 17, wherein said divalent cation is Mg^{2+} .

- 19. The method of claim 16, wherein said cleavage is carried out in the presence of a protein nuclease.
- 20. The method of claim 19, wherein said protein nuclease is an RNAse L.
- 10 21. The compound of claim 1, wherein said compound is chemically synthesized.
 - 22. The compound of claim 1, wherein said oligonucleotide comprises at least one 2'-sugar modification.
 - 23. The compound of claim 1, wherein said oligonucleotide comprises at least one nucleic acid base modification.
- 15 24. The compound of claim 1, wherein said oligonucleotide comprises at least one phosphate modification.
 - 25. The method of claim 14, wherein said drug therapy is the administration of type I interferon.
 - 26. The method of claim 25, wherein said type I interferon and the compound of claim 1 are administered simultaneously.
- 27. The method of claim 25, wherein said type I interferon and the compound of claim 1 are administered separately.
 - 28. The method of claim 25, wherein said type I interferon is selected from the group consisting of interferon alpha, interferon beta, consensus interferon, polyethylene glycol interferon,

polyethylene glycol interferon alpha 2a, polyethylene glycol interferon alpha 2b, and polyethylene glycol consensus interferon.

29. The method of claim 14, wherein R₅ in said compound is selected from the group consisting of alkyl, alkylamine and abasic moiety and said drug therapy comprises treatment with an enzymatic nucleic acid molecule which is targeted against HCV replication.

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- 30. The method of claim 14, wherein R₅ in said compound is selected from the group consisting of alkyl, alkylamine and abasic moiety and said drug therapy comprises treatment with an antisense nucleic acid molecule which is targeted against HCV replication.
- 31. A composition comprising type I interferon and the compound of claim 1 and a pharmaceutically acceptable carrier.
 - 32. The compound of claim 1, wherein said abasic moiety is selected from the group consisting of:

$$R_7$$
 R_3 R_7 and R_7 R_7 R_7

wherein R₃ is selected from the group consisting of S, N, or O and R₇ is independently selected from the group consisting of H, OH, NH2, O-NH2, alkyl, S-alkyl, O-alkyl, O-alkyl, O-alkyl, O-alkyl, O-alkyl, O-alkyl, alkyl, a

- 33. An enzymatic nucleic acid molecule that specifically cleaves RNA derived from hepatitis B virus (HBV), wherein said enzymatic nucleic acid molecule comprises sequence defined as Seq. ID No. 6346.
- 34. A method of administering to a cell an enzymatic nucleic acid molecule of claim 33 comprising contacting said cell with the enzymatic nucleic acid molecule under conditions suitable for said administration.

35. The method of claim 34, further comprising the administration of one or more other therapeutic compounds.

- 36. The method of claim 35, wherein said other therapeutic compound is type I interferon.
- 37. The method of claim 35, wherein said other therapeutic compound is 3TC® (Lamivudine).
- 5 38. The method of claim 35, wherein said other therapeutic compound and the enzymatic nucleic acid molecule are administered simultaneously.
 - 39. The method of claim 35, wherein said other therapeutic compound and enzymatic nucleic acid molecule are administered separately.
- 40. The method of claim 36, wherein said type I interferon is selected from the group consisting of interferon alpha, interferon beta, consensus interferon, polyethylene glycol interferon, polyethylene glycol interferon alpha 2a, polyethylene glycol interferon alpha 2b, and polyethylene glycol consensus interferon.
 - 41. The method of claim 34 or claim 35, wherein said cell is a mammalian cell.
 - 42. The method of claim 41, wherein said cell is a human cell.
- 15 43. The method of claim 41, wherein said administration is in the presence of a delivery reagent.
 - 44. The method of claim 43, wherein said delivery reagent is a lipid.
 - 45. The method of claim 44, wherein said lipid is a cationic lipid or a phospholipid.
 - 46. The method of claim 43, wherein said delivery reagent is a liposome.
- 47. A nucleic acid molecule that specifically binds the hepatitis B virus (HBV) reverse transcriptase primer, wherein said nucleic acid molecule comprises the sequence (UUCA)_n, wherein n is an integer from 1 to 10.

48. A nucleic acid molecule that specifically binds the hepatitis B virus (HBV) reverse transcriptase primer, wherein said nucleic acid molecule is a sequence comprising any of Seq. ID Nos: 11216-11262, 11264, 11266, 11268, 11270, 11272, 11274, 11276, 11278, 11280, 11282, 11284, 11286, 11288, 11290 and 11292.

- 5 49. A nucleic acid molecule that specifically binds to the Enhancer I sequence of HBV DNA.
 - 50. A nucleic acid molecule of claim 49 wherein said nucleic acid molecule comprises any of SEO ID Nos: 11327, 11330, 11332, 11334, 11335, 11338, 11340 and 11342.
 - 51. A method of administering to a cell a nucleic acid molecule of any of claims 47-50 comprising contacting said cell with the nucleic acid decoy molecule under conditions suitable for said administration.
 - 52. The method of claim 51, further comprising administering one or more other therapeutic compounds.
 - 53. The method of claim 52, wherein said other therapeutic compound is type I interferon.

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- 54. The method of claim 52, wherein said other therapeutic compound is 3TC® (Lamivudine).
- 15 55. The method of claim 52, wherein said other therapeutic compound and the nucleic acid molecule are administered simultaneously.
 - 56. The method of claim 52, wherein said other therapeutic compound and the nucleic acid molecule are administered separately.
 - 57. The method of claim 53, wherein said type I interferon is selected from the group consisting of interferon alpha, interferon beta, consensus interferon, polyethylene glycol interferon, polyethylene glycol interferon alpha 2a, polyethylene glycol interferon alpha 2b, and polyethylene glycol consensus interferon.
 - 58. The nucleic acid molecule of any of claims 47-50, wherein said nucleic acid molecule comprises a nucleic acid backbone modification.

59. The nucleic acid molecule of any of claims 47-50, wherein said nucleic acid molecule comprises a nucleic acid sugar modification.

- 60. The nucleic acid molecule of any of claims 47-50, wherein said nucleic acid decoy molecule comprises a nucleic acid base modification.
- 5 61. The method of claim 51 or claim 52, wherein said cell is a mammalian cell.
 - 62. The method of claim 61, wherein said cell is a human cell.
 - 63. The method of claim 61, wherein said administration is in the presence of a delivery reagent.
 - 64. The method of claim 63, wherein said delivery reagent is a lipid.
 - 65. The method of claim 64, wherein said lipid is a cationic lipid or a phospholipid.
- 10 66. The method of claim 63 wherein said delivery reagent is a liposome.
 - 67. The nucleic acid molecule of claim 47, wherein said nucleic acid molecule is a decoy nucleic acid molecule.
 - 68. The nucleic acid molecule of claim 47, wherein said nucleic acid molecule is an aptamer nucleic acid molecule.
- 15 69. The nucleic acid molecule of claim 49, wherein said Enhancer I sequence comprises a Hepatocyte Nuclear Factor 3 and/or Hepatocyte Nuclear Factor 4 binding sequence.
 - 70. A mouse implanted with HepG2.2.15 cells, wherein said mouse sustains the propagation of HEPG2.2.15 cells and HBV production.
- 71. The mouse of claim 70, wherein said mouse has been infected with HBV for at least one week.
 - 72. The mouse of claim 70, wherein said mouse has been infected with HCV for at least four weeks.
 - 73. The mouse of claim 70, wherein said mouse has been infected with HBV for at least eight weeks.

- 74. The mouse of claim 70, wherein said mouse is an immuno compromised mouse.
- 75. The mouse of claim 74, wherein said mouse is a nu/nu mouse.
- 76. The mouse of claim 74, wherein said mouse is a scid/scid mouse.
- 77. A method of producing a mouse according to claim 70, comprising injecting HepG2.2.15 cells into said mouse under conditions suitable for the propagation of the HepG2.2.15 cells in said mouse.
 - 78. The method of claim 77, wherein said mouse is a nu/nu mouse.
 - 79. The method of claim 77, wherein said mouse is a scid/scid mouse.
 - 80. The method of claim 77, wherein said injection is subcutaneous injection.
- 10 81. The method of claim 77, wherein said HepG2.2.15 cells are suspended in Dulbecco's PBS solution including calcium and magnesium.
 - 82. A method of screening a therapeutic compound for activity against HBV comprising administering said therapeutic compound to a mouse of claim 70 and monitoring said mouse for the effects of said therapeutic compound on levels of HBV DNA.
- 15 83. The method of claim 70, wherein said therapeutic compound is a nucleic acid molecule, administered alone or in combination with another therapeutic compound or treatment.
 - 84. The method of claim 83, wherein said nucleic acid molecule is an enzymatic nucleic acid molecule.
- 85. The method of claim 83, wherein said nucleic acid molecule is an antisense nucleic acid molecule.
 - 86. The method of claim 83, wherein said other treatment is antiviral therapy.
 - 87. The method of claim 86, wherein said antiviral therapy is treatment with 3TC® (Lamivudine).
 - 88. The method of claim 86, wherein said antiviral therapy is treatment with interferon.
- 89. The method of claim 88, wherein said interferon is selected from the group consisting of consensus interferon, type I interferon, interferon alpha, interferon beta, consensus

interferon, polyethylene glycol interferon, polyethylene glycol interferon alpha 2a, polyethylene glycol interferon alpha 2b and polyethylene glycol consensus interferon.

90. An immunocompromised non-human mammal implanted with HepG2.2.15 cells, wherein said non-human mammal is susceptible to HBV infection and capable of sustaining HBV DNA expression.

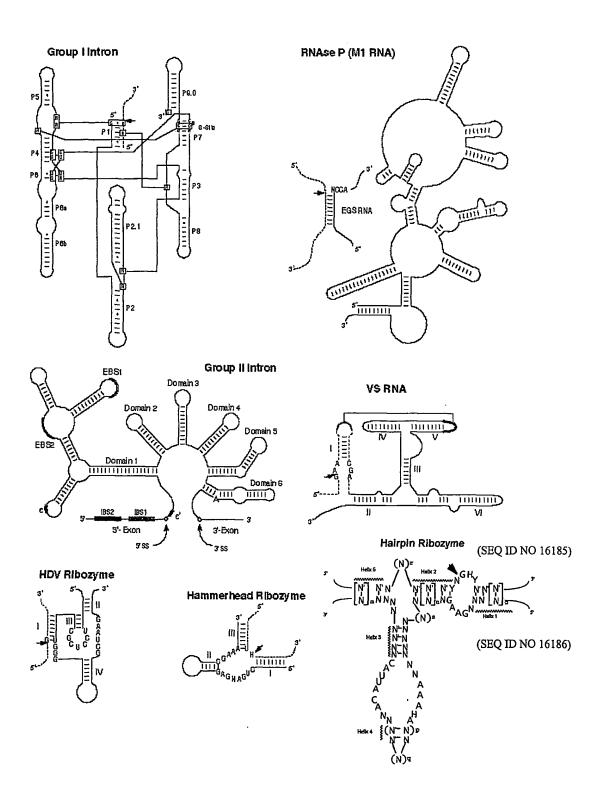
5

- 91. The mammal of claim 90, wherein said non-human mammal has been infected with HBV for at least one week.
- 92. The mammal of claim 90, wherein said non-human mammal has been infected with HCV for at least four weeks.
- 10 93. The mammal of claim 90, wherein said non-human mammal has been infected with HBV for at least eight weeks.
 - 94. The mammal of claim 90, wherein said non-human mammal is a nu/nu mammal.
 - 95. The mammal of claim 90, wherein said non-human mammal is a scid/scid mammal.
- 96. A method of producing a non-human mammal according to claim 90, comprising injecting HepG2.2.15 cells into said non-human mammal under conditions suitable for the propagation of the HepG2.2.15 cells in said non-human.
 - 97. The method of claim 96, wherein said non-human mammal is a nu/nu mammal.
 - 98. The method of claim 96, wherein said non-human mammal is a scid mammal.
 - 99. The method of claim 96, wherein said injection is subcutaneous injection.
- 20 100. The method of claim 96, wherein said HepG2.2.15 cells are suspended in Delbecco's PBS solution including calcium and magnesium.
 - 101.A method of screening a therapeutic compound for activity against HBV, comprising administering said therapeutic compound to a non-human mammal of claim 90 and monitoring said mammal for the effects of said therapeutic compound on levels of HBV DNA.
 - 102. The method of claim 101, wherein said therapeutic compound is a nucleic acid molecule administered alone or in combination with another therapeutic compound or treatment.

103. The method of claim 102, wherein said nucleic acid molecule is an enzymatic nucleic acid molecule.

- 104. The method of claim 102, wherein said nucleic acid molecule is an antisense nucleic acid molecule.
- 5 105. The method of claim 102, wherein said other treatment is antiviral therapy.
 - 106. The method of claim 105, wherein said antiviral therapy is treatment with 3TC® (Lamivudine).
 - 107. The method of claim 105, wherein said antiviral therapy is treatment with interferon.
- 108. The method of claim 107, wherein said interferon is selected from the group consisting of consensus interferon, type I interferon, interferon alpha, interferon beta, consensus interferon, polyethylene glycol interferon, polyethylene glycol interferon alpha 2a, polyethylene glycol interferon alpha 2b, and polyethylene glycol consensus interferon.

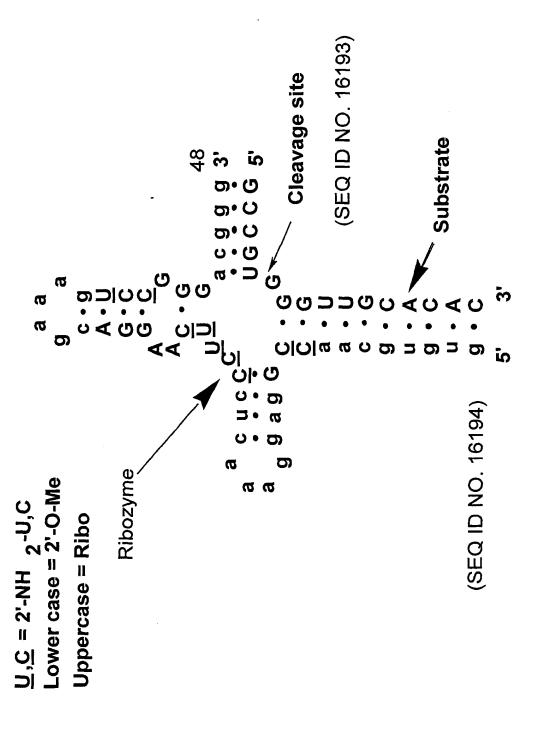
Figure 1: Ribozyme Motifs



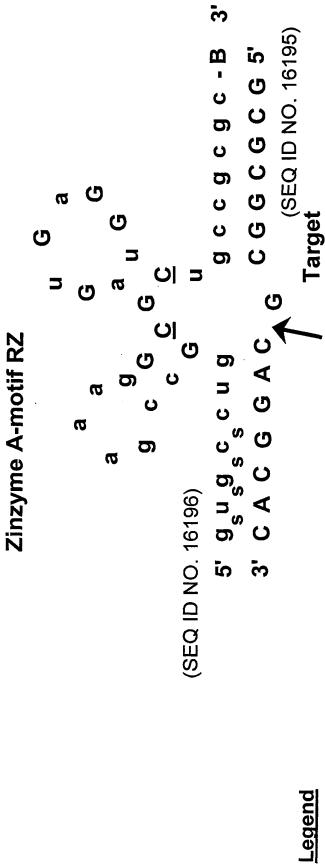
S = phosphorothioate Lower case = 2'-OMe nnnnn-5 C (SEQ ID NO. 16190)

U4 rG5 NCH R2 E-NNNNN I NCH RZ rN = ribonucleotide $U_4 = 2$ -C-allyl Target H = A,U,C ΓA₆ ı'^ga₉rG₈^u7 Z Z Z Z Z Z Z Z 5'-NNNN C H 3'-nnnnnrl_{15.1} Y = U,C (SEQ ID NO. 16189) Figure 2: Examples of Nuclease Stable Ribozyme Motifs Ø (SEQ ID NO. 16192) **G-Cleaver Rz** 3'- nnnnnrA_{15.1} nnnnn - 5' G NNNN N NN - 3' n n n n n n n - 5' u (Seo ID NC I NNNNNNN I (SEQ ID NO. 16188) HH Rz **Target Target** rGs rA 6 . ე တ္ပ 5'- NNNNN X D NNNNN. S (SEQ ID NO. 16191) (SEQ ID NO. 16187)

Figure 3: 2'-O-Me substituted Amberzyme Enzymatic Nucleic Acid Motif







Uppercase indicates natural ribo residues

C indicates 2'- d-NH₂-C

Lowercase: 2'-0-Me

Subscript s indicates phosphothioate linkage

B: 3'- 3' abasic moiety

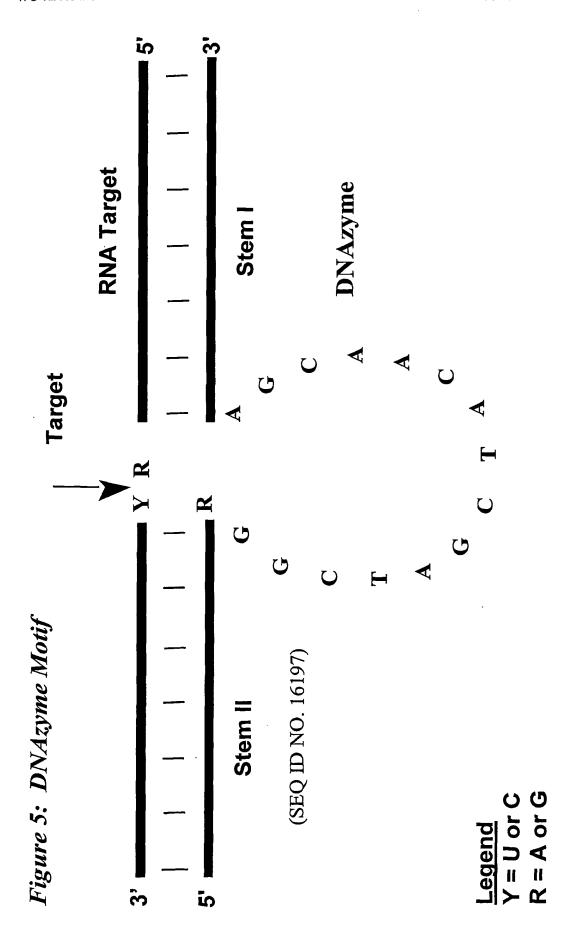


Figure 6: Change in Serum HBV DNA Levels Following 14 Days of Ribozyme Treatment of HBV Transgenic Mice

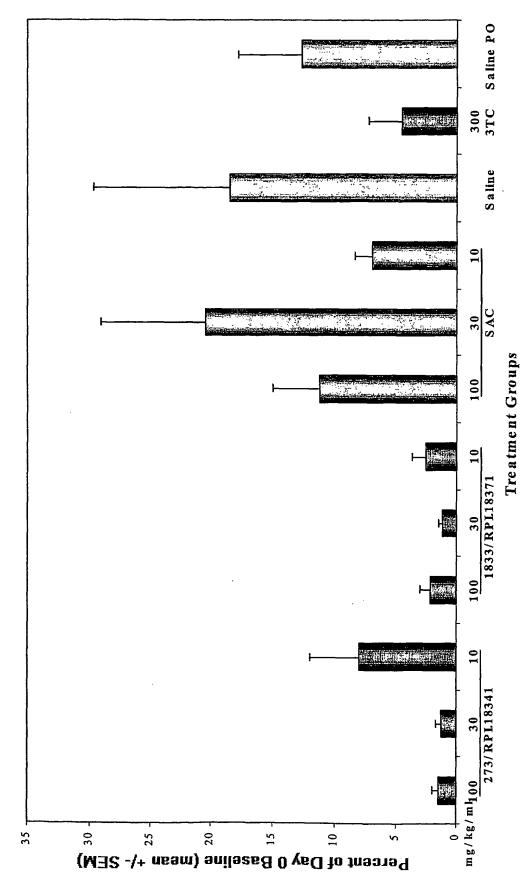


Figure 7: Mean Serum HBV DNA Levels Following 14 Days of Ribozyme Treatment of HBV Transgenic Mice

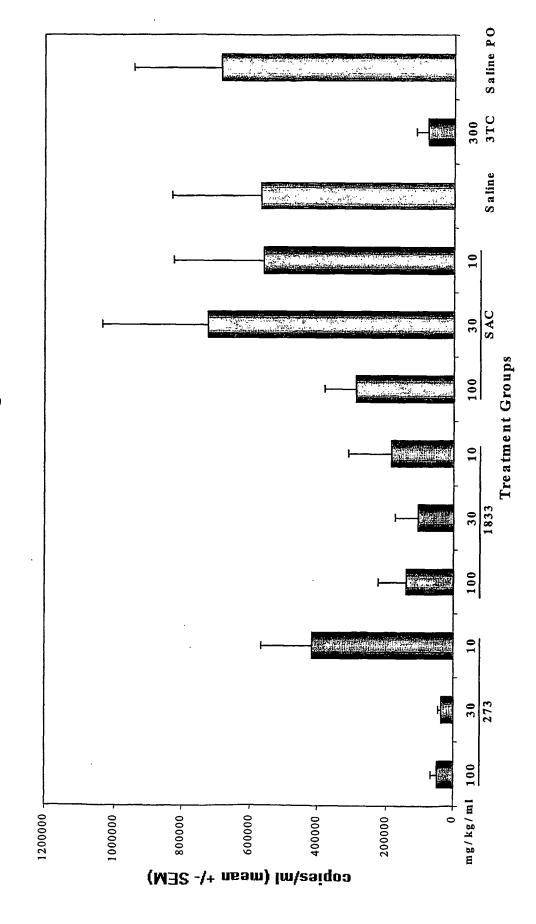
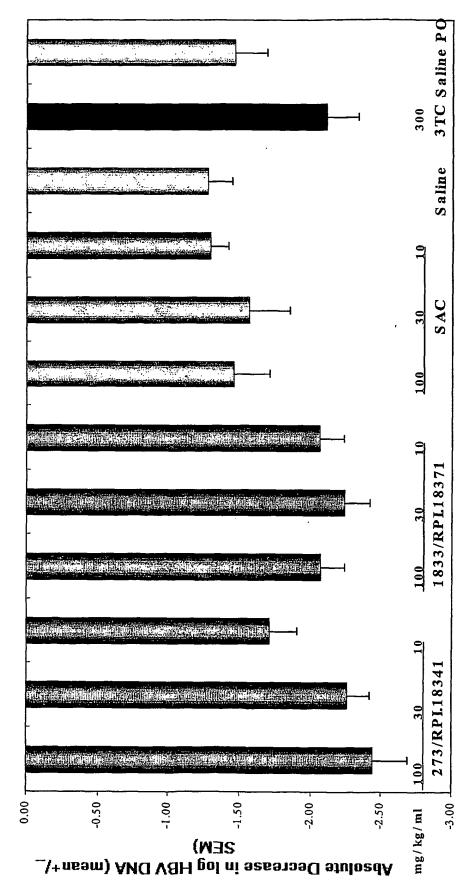


Figure 8: Change in Serum HBV DNA Levels (Log) Following 14 Days of Ribozyme Treatment of HBV Transgenic Mice



Treatment Groups

Figure 9: anti-HBV Ribozymes in HepG2.2.15 Cells: HBV DNA

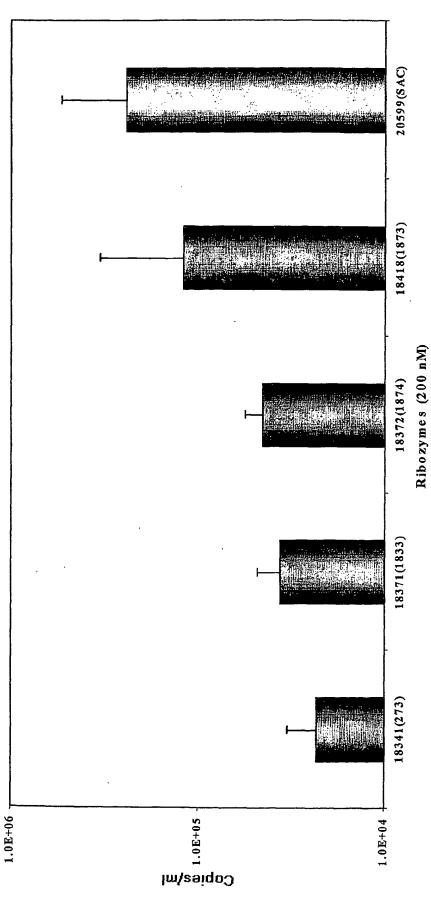


Figure 10: Arm, Loop, and Stem Variants of Anti-HBV Ribozyme Targeting Site 273: HBs Ag Levels in Hep G2 Cells Ribozymes **化红细胞的**字 三十,形成的 0.6 0.5 0.7 0.3 0.7 0.1 0.4

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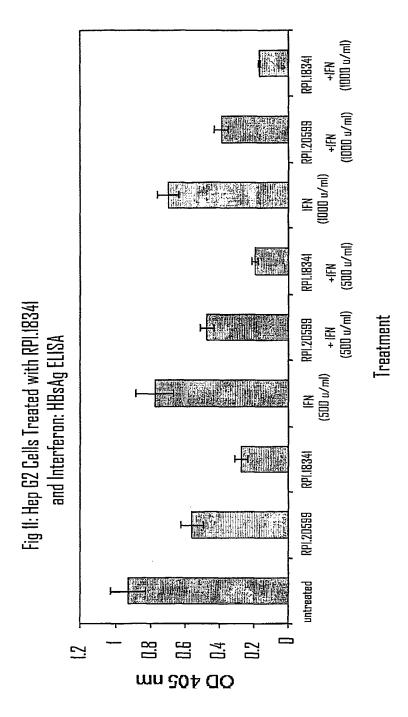


Fig 12: Hep G2 Cells Treated with 100 nM RPI.18341 and Lamivudine (31C): HBsAg ELISA

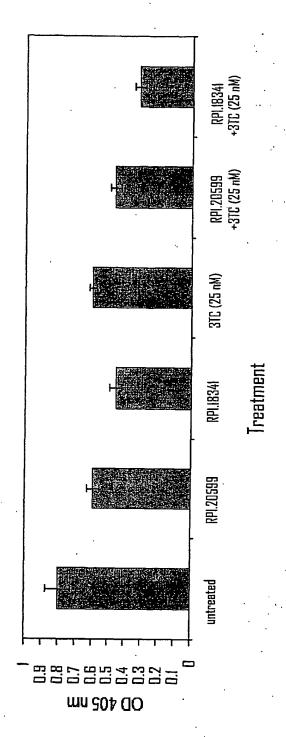


Figure 13: HBV Reverse Transcription DR1 DR1 (-) strand DR2 DR2 DR2 polymerase cap UUCA DR1 DR1

DECOY/APTAMER UUCA UUCA DR1 DR1 Figure 14: HBV RT Inhibition (-) strand 🍊 DR2 DR2 **DECOY/APTAMER** NO TRANSCRIPTION polymerase cap UUCA DR1

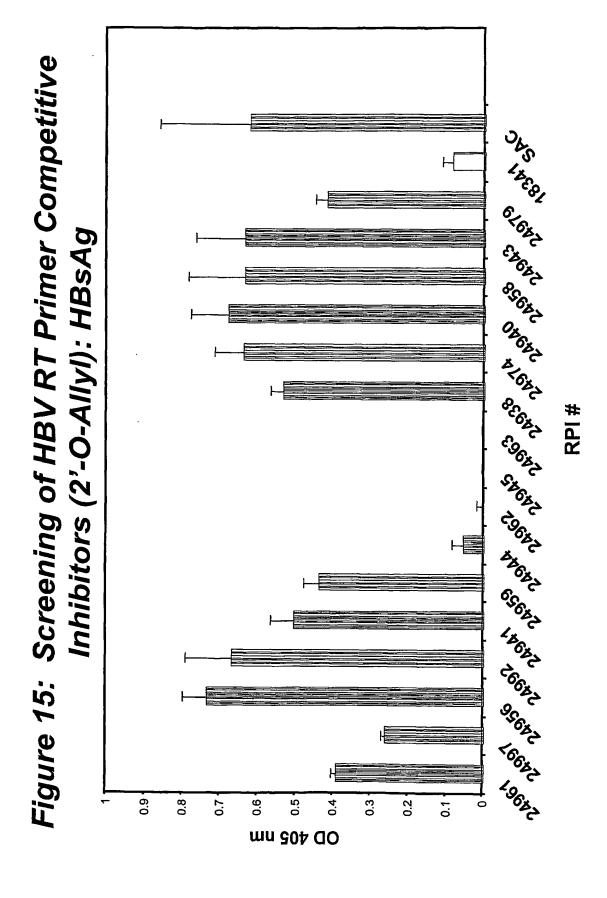
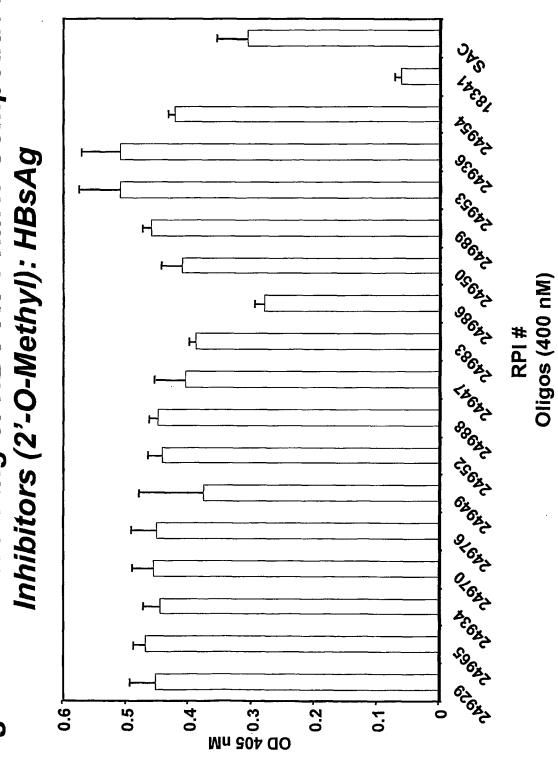


Figure 16: Screening of HBV RT Primer Competitive



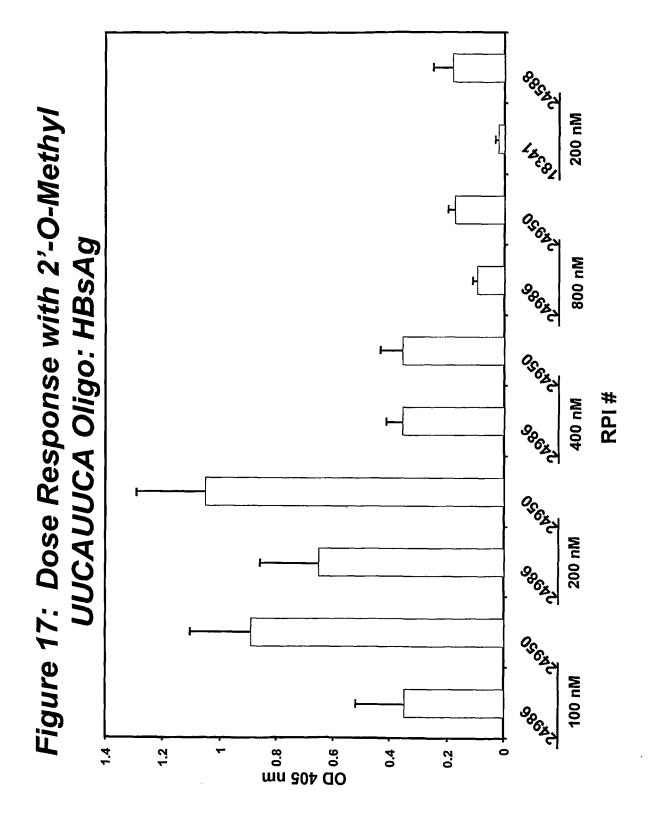


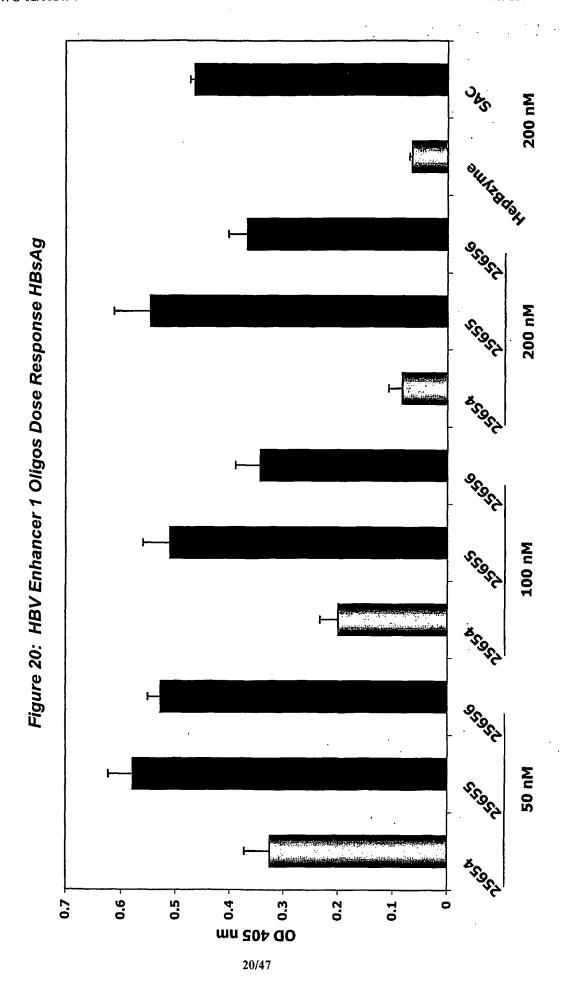
Figure 18: HBV Enhancer I Oligo Screen 200 nM:HBsAg the continue at the property with the thing the transfer of the second service of the second second service of the second sec 0.5 0.3 0.2 0.4 0 0.1 OD 402 um

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Figure 19: HBV Enhancer I Oligo Screen 400 nM: HBsAg 0.5 0.1 OD 402 um

Oligos (400 nM)

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PCT/US02/09187

50 Figure 21: Growth of HepG2.2.15 tumors in Athymic Nu/Nu female mice Time (days) 35 30 25 20 2000 1500 1000 500 (məs -l+ ^emm) Average Tumor Volume

Figure 22: Growth of HepG2.2.15 tumors in Athymic Nu/Nu female mice

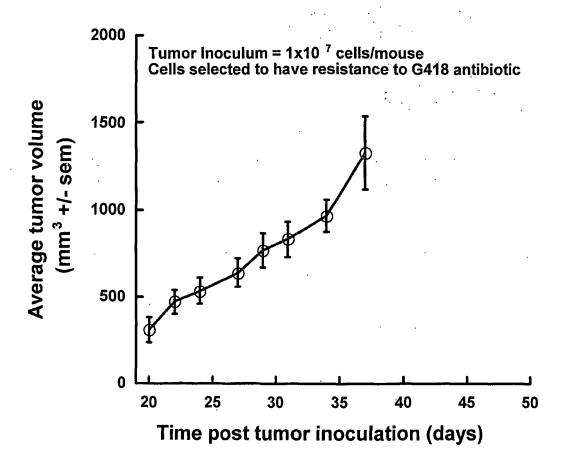


FIGURE 23 Dual Reporter System for Cytoplasmic HCV Target

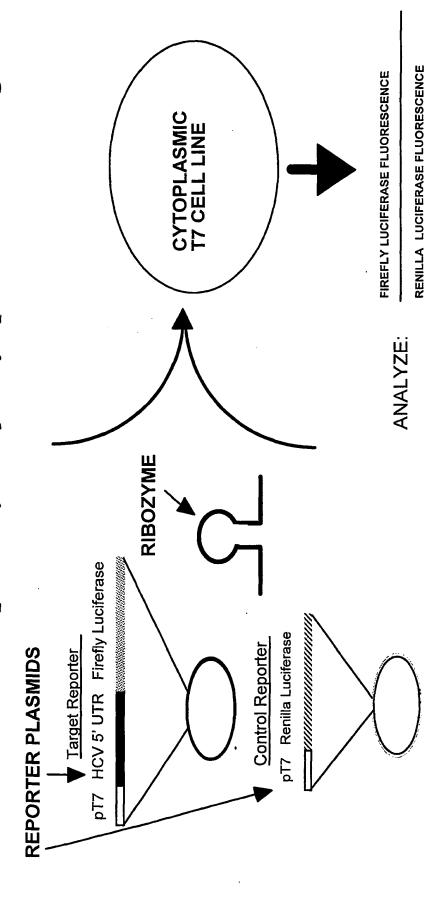


Figure 24: Secondary structure of the HCV 5'UTR

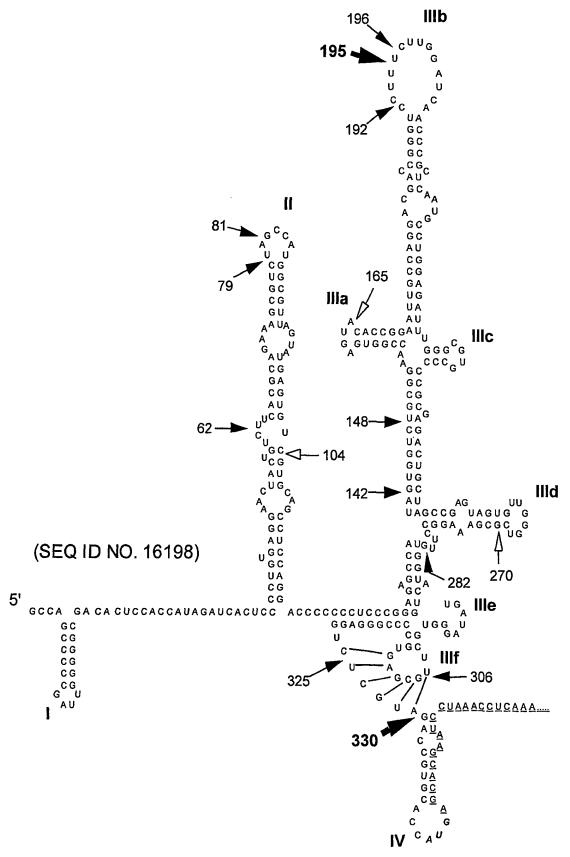
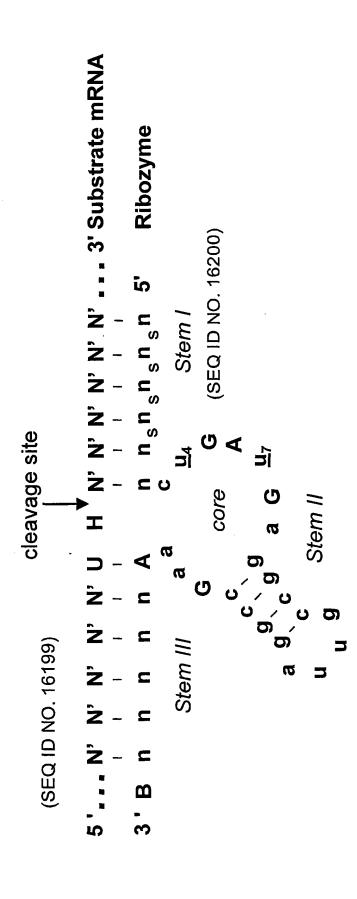


Figure 25: A Chemically Stabilized Enzymatic Nucleic Acid Molecule



UPPER CASE = RIBO nucleotide lower case = 2'-0-methyl nucleitide <u>u</u> = 2'-deoxy-2'-amino Uridine s = phosphorothioate B = inverted deoxyabasic moiety

Figure 26A: Enzymatic nucleic acid mediated inhibition of HCV-luciferase expression

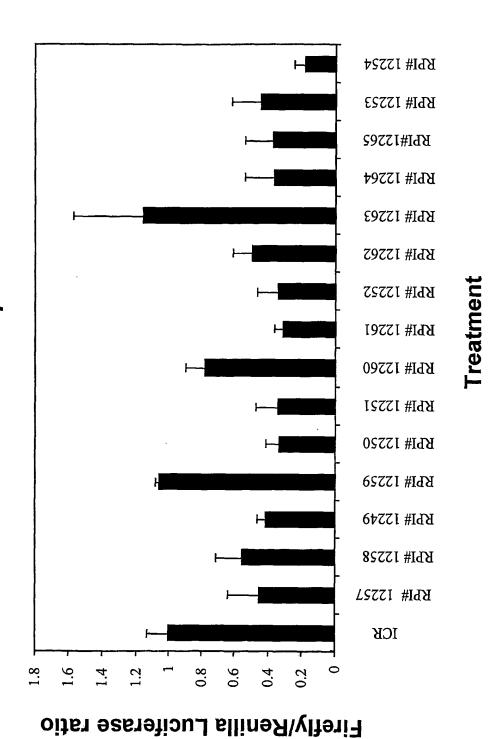
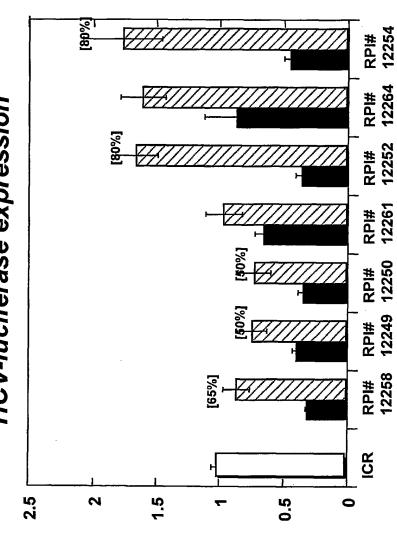


Figure 26B: Enzymatic nucleic acid mediated inhibition of HCV-luciferase expression



Treatment

Firefly/Renilla Luciferase ratio

Figure 27A: Dose-dependent enzymatic nucleic acid

inhibition of HCV/luciferase expression

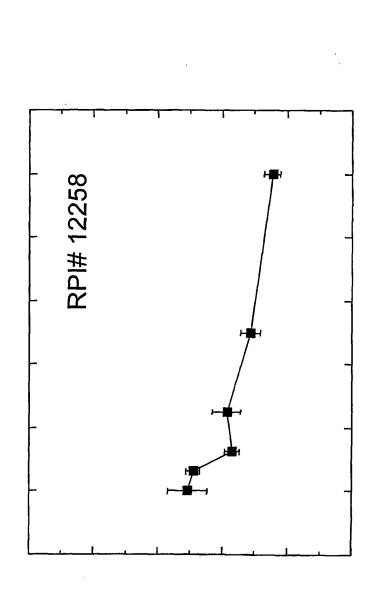


Figure 27B: Dose-dependent enzymatic nucleic acid inhibition of HCV/luciferase expression

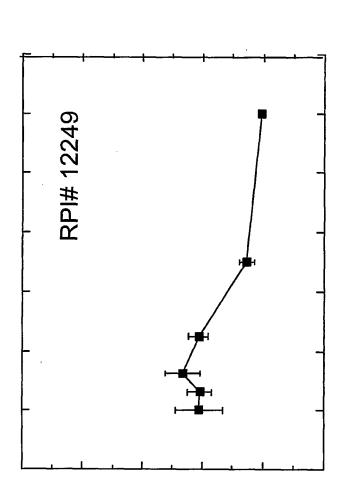


Figure 27C: Dose-dependent enzymatic nucleic acid inhibition of HCV/luciferase expression

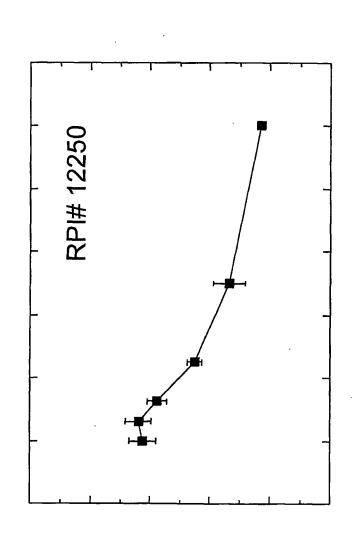


Figure 27D: Dose-dependent enzymatic nucleic acid inhibition of HCV//uciferase expression

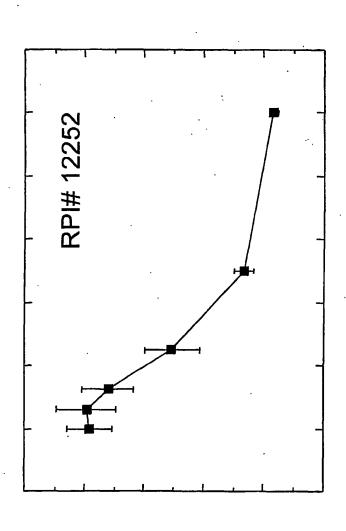
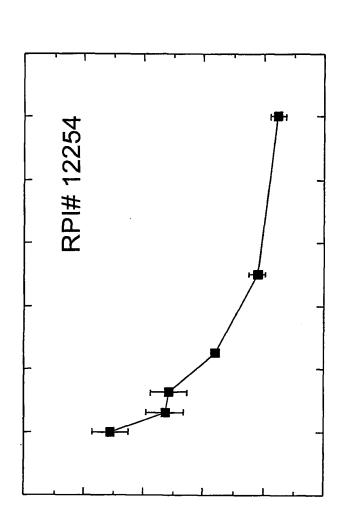


Figure 27E: Dose-dependent enzymatic nucleic acid inhibition of HCV/luciferase expression



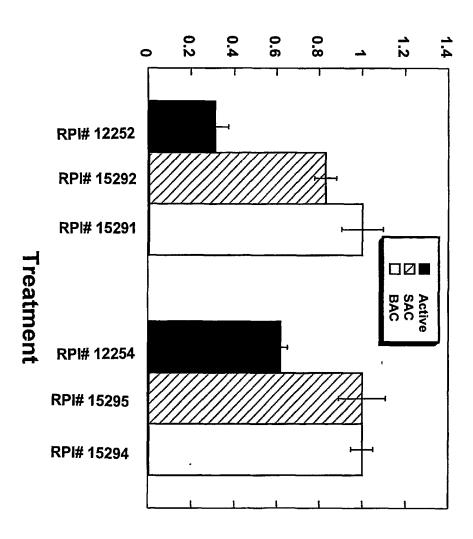
PCT/US02/09187 WO 02/081494

Firefly/Renilla RNA Luciferase ratio

HCV/luciferase RNA and inhibition of HCV-luciferase Figure 28A: Enzymatic nucleic acid reduction of 0.2 0.6 0.8 <u>1</u>,2 0 **RPI# 12252 RPI# 15292** expression RPI# 15291 Active SAC BAC **RPI# 12254 RPI# 15295 RPI# 15294**

Treatment

Firefly/Renilla Luciferase ratio



HCV/luciferase RNA and inhibition of HCV-luciferase Figure 28B: Enzymatic nucleic acid reduction of expression

Figure 29A: Interferon Dose response with Enzymatic Nucleic Acid

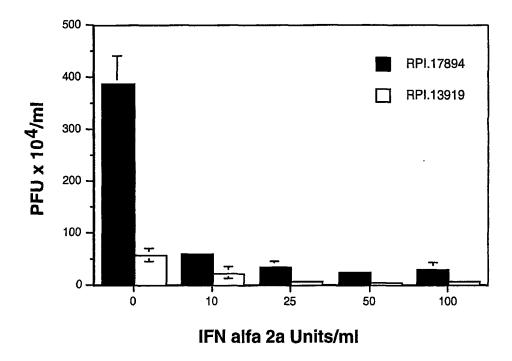


Figure 29B: Interferon Dose response with Enzymatic Nucleic Acid

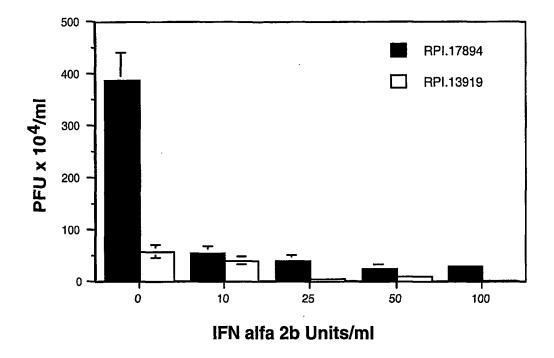


Figure 30: Site 195 anti-HCV enzymatic nucleic acid dose response in combination with interferon pretreatment

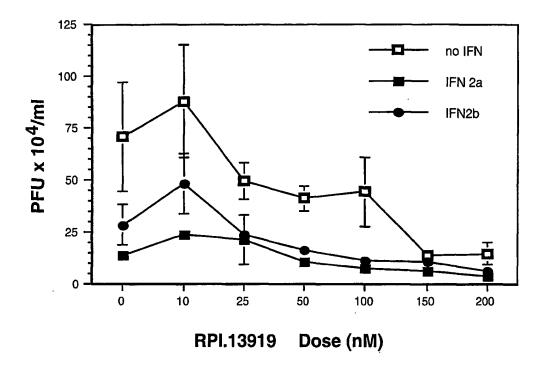


Figure 31A: CIFN dose response with site 195 anti-HCV enzymatic nucleic acid treatment

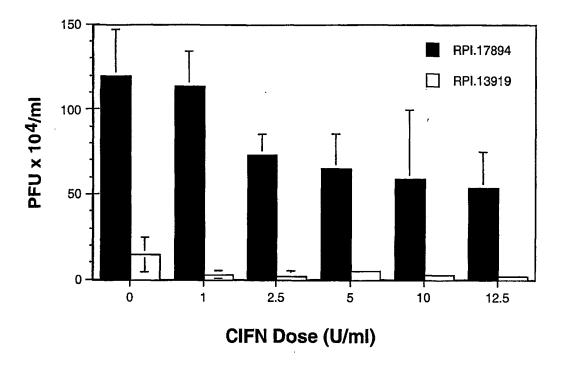


Figure 31B: Site 195 anti-HCV enzymatic nucleic acid dose response with CIFN pretreatment

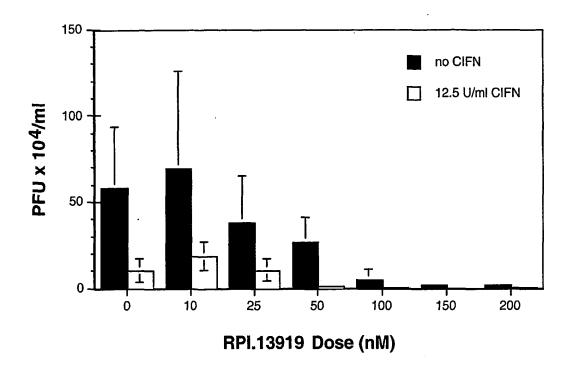


Figure 32: Enhanced antiviral effect of an anti-HCV enzymatic nucleic acid targeting site 195 used in combination with consensus interferon (CIFN)

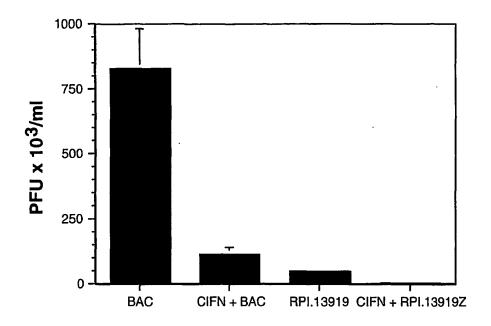


Figure 33: Inhibition of HCV-PV Replication by Zinzyme Treatment

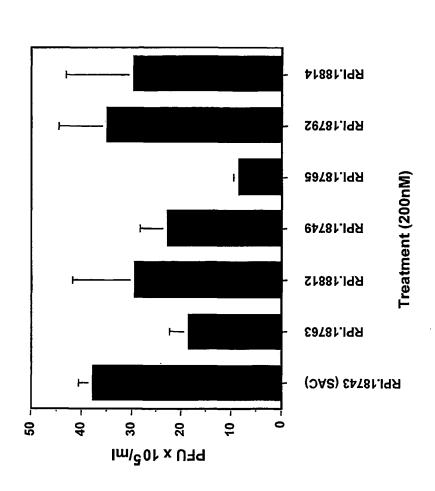


Figure 34: Inhibition of HCV-Poliovirus Replication by Antisense

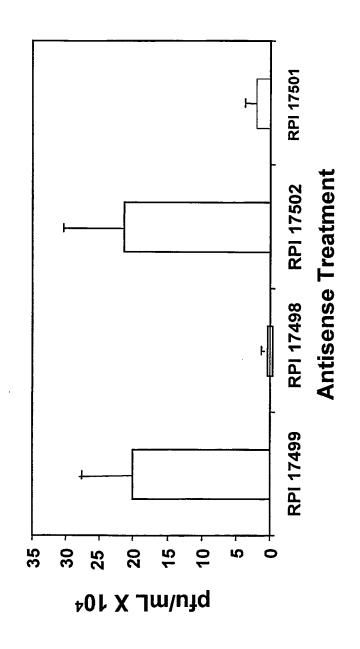
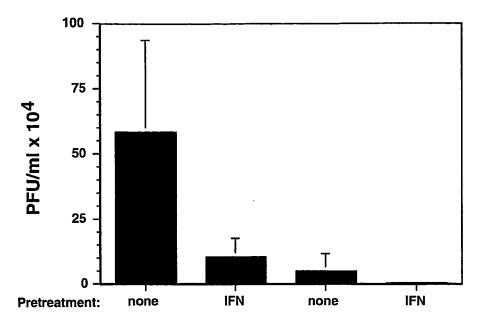


Figure 35: Modified 2-5A Compound

I:
$$X = 0$$
II: $X = S$

Figure 36A: Ribozyme activity and enhanced antiviral effect



Treatment: RPI.17894 RPI.17894 RPI.13919 RPI.13919

Figure 36B: Ribozyme activity and enhanced antiviral effect

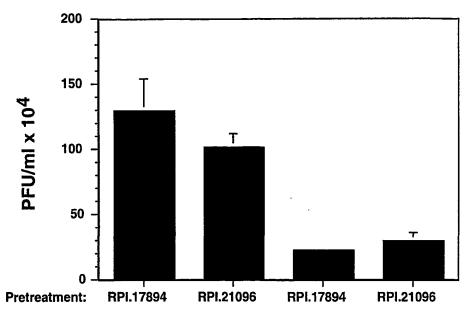
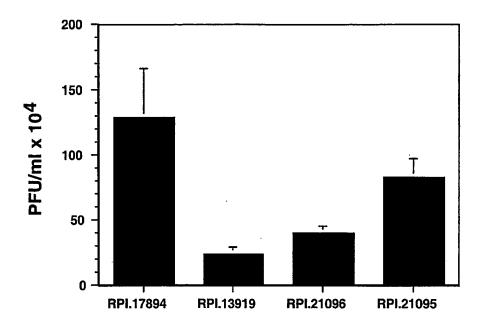
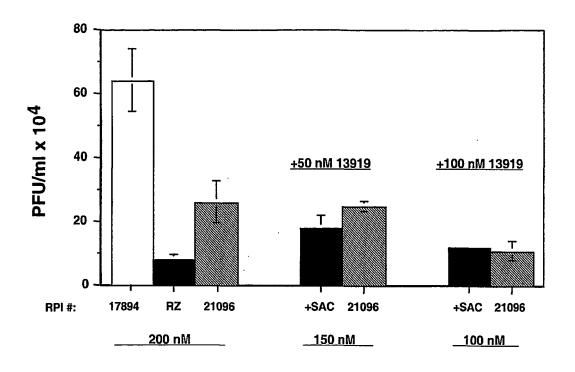


Figure 37: Inhibition of viral replication with anti-HCV ribozyme or 2-5A treatment



Treatment

Figure 38: Anti-HCV ribozyme in combination with 2-5A treatment



Treatment